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Scope of This Index

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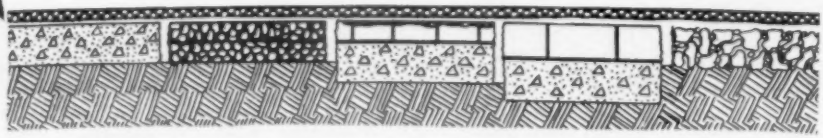

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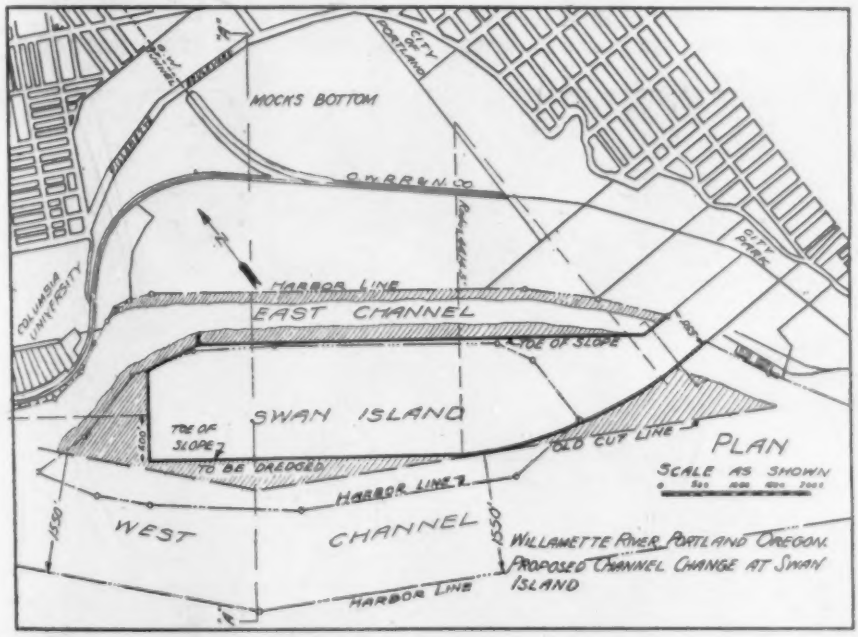
Recent Developments of Municipal Airports in the West

By D. R. Lane

UP in Portland, Ore., dredges are busy churning up silt from the bottom of the Willamette and pumping it over Swan Island to crown that area and make it available for use as an airport. In San Francisco tractors and graders are busily spreading soil over Mills Field, where that city is creating an air harbor. In San Diego business men are scurrying about, making preparations for a bond issue whose proceeds will complete a municipal port for aircraft on the city's waterfront. In nearly a dozen other cities of the Far West projects for new airports or improvements of existing facilities are under way at a total estimated cost of over $8,000,000.

Not since the war united the country in a fervor of patriotic efforts has any issue taken such hold of public interest in the country beyond the Rockies as has aviation. Portland is spending $1,250,000 to create the Swan Island airport. San Francisco's program calls for more than $1,000,000 and San Diego's some $800,000. Oakland has acquired a 680-acre area and has an option on another 600 acres. City officials and civic bodies in Los Angeles are discussing a bond issue of $3,000,000 or more for acquisition of an airport site before rising property values make the project more expensive. Santa Monica plans early improvement of Clover Field, acquired at $860,000.



The Portland Project

Of all these projects, that at Portland is the most ambitious which has yet taken shape. Portland is probably the first city where the harbor authorities have taken the attitude that a port is a port, whether for marine or aerial traffic, and that it is the port commission's duty to supply facilities for both.

Following out this idea, the Commission is transforming Swan Island into one of the most modern airports in the country. This block of land long had been an obstruction in the Willamette, forcing the stream's main flow into a narrow and crooked channel where several marine accidents had occurred. The Commission, to straighten the channel, decided to pump the island over itself by suction dredge methods, cutting away from one bank and depositing the spoil on the other, until the whole island had been moved about 1,200 feet.

In depositing the spoil, care is being taken to lay out the re-created island in such shape and position that it can be used by aircraft, crowning the fill to assure good drainage and topping it with a 2-foot layer of earth which will grow turf. The new airport will be 6,300 feet long and 1,224 feet wide and will stand about 5 feet above the highest high-water mark of the river. From one end a causeway will lead to the mainland and this will be built wide enough to serve as a runway for planes.

Thus there will be available a 6,000-foot runway along the axis of the island, which parallels the prevailing wind direction, and a 5,000-foot runway partly on the causeway and partly on the island, which will accommodate the planes under all other wind conditions experienced at Portland. A still-water behind the island will afford a harbor to seaplanes, which has caused naval authorities to take great interest in the development.

The island will be devoted entirely to landing and taking off, hangars and the necessary service facilities. Industrial developments having to do with aviation will be confined to a manufacturing area just across the causeway. The land involved in this project has an estimated value of $20,000 an acre, the most costly ground space devoted to aviation anywhere in the West. The island offers several important advantages as an airport site. It is easy of access from the air, as there are no obstructions near it, and it is more visible in thick weather than a site on the mainland, the difference in color between land and water readily revealing its position. It is only 1½ miles from the business section of the city.

All improvements at the port will be of the

SAN DIEGO MUNICIPAL AIRPORT SITE

The white patch in the lower left-hand corner is the end of the fill made for the United States marine base. The San Diego site will extend from the white patch in the center, just beyond the airplane, to the marine base

MILLS FIELD, MUNICIPAL AIRPORT OF SAN FRANCISCO

The administration building is in the background. The runway was built by hauling the material in trucks, dumping it along the desired line of runway and leveling off with road scrapers hauled by tractors. One of the latter is shown, to the right of the line of trucks

highest type. "We have plenty of money and will spend whatever is needed," said J. H. Polhemus, Chief Engineer of the Port Commission. Mr. Polhemus made a tour of eastern airports, studying their improvements, before plans for the Portland project were laid down.

The exact nature of some of the facilities to be installed has not been determined as yet. For instance, neon tubes are being considered for use as boundary markers. The port will be in usable condition within a short time and will be completed early in 1928.

The San Diego Airport

Like Portland, San Diego plans to develop its airport as a part of, and contiguous to, its harbor. The site is a triangular fill lying between the waterfront industrial district and the United States Marine base. The southern portion of this latter area is devoted to aviation and, taken together, the base and the municipal airport will afford a clear space 2½ miles long for planes to land or take off, probably the longest runway in the country. A part of this fill has been placed.

This airport will lie only a mile and a half from the San Diego post-office and will have broad street connections with the industrial district and the center of the city, while a main highway along one side will give ready access to interior points. A railroad and electric car line are only 100 yards from one border, and deep water along another will afford opportunities for handling seaplanes.

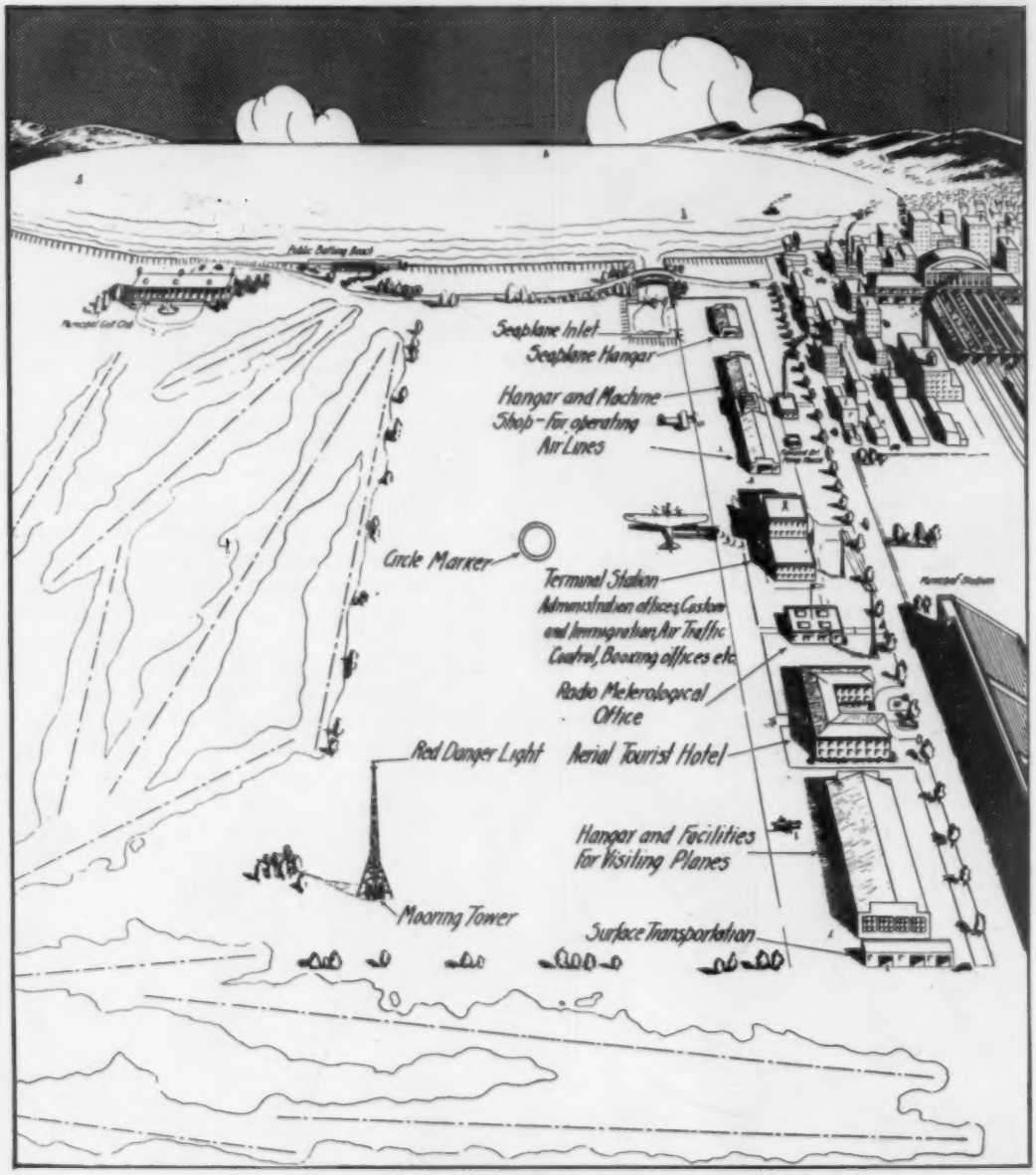
The main landing field will be circular, 3,000 feet in diameter, and will be bordered by two height limit zones in which hangars and aircraft factories can be located. The height limits are such that planes can glide over the buildings into the field at as low a ratio as one foot of descent for each ten feet advanced. Subsidiary areas are to be devoted to handling and servicing of planes and to erecting planes turned out by the factories. Financing is to be handled initially by a bond issue, $200,000 worth of bonds to be sold each year for four years as the work progresses. Eventually the cost of the field will be repaid out of rentals from factory sites, rents of hangar space and similar items. However, the field is not regarded as a direct revenue producer, but rather in the light of an indirect benefit to the community through increasing its transportation facilities.

San Francisco Temporary Flying Field

This also is the attitude of San Francisco, where the city has spent $100,000 in leasing and improving Mills Field as a temporary airport site pending completion of an exhaustive study which will determine the permanent site. The investigation includes a survey of meteorological conditions at nine proposed sites, to be made under the Weather Bureau's direction and to cover a year's time, and test flights thrice a week for a year over each of these sites by military fliers.

The present field was dedicated May 7, 1927. It is a 150-acre area 13 miles south from the post-office and lies between the Bay Shore Highway, now under construction, and the bay of San Francisco. It is approximately 5,000 by 1,500 feet in size and permits planes to make a run of 3,000 feet into the prevailing wind in landing or taking off. Being located beside the water and with meadows on the other sides, it is unusually free from obstructions in its aerial approaches.

The city has installed one of the best lighting systems in the country to make the field avail-



A WELL-EQUIPPED AIRPORT OF THE FUTURE, OPERATED IN CONJUNCTION WITH OTHER MUNICIPAL ACTIVITIES

This sketch is reproduced by permission of the Ronald Press Co., of New York, from Lieut. Donald Duke's new book on "Airports and Airways," of which it is the frontispiece

able for use at any hour, including boundary lights, obstruction lights and beacon, in strict accord with the Department of Commerce recommendations. A feature of the development is that everything except the concrete floor of the hangar has been built with a view to easy removal, if necessary, to whatever permanent site may be selected. Even the electric cable carrying current to the boundary lights can be ripped out of the ground with a tractor and relaid where desired. The administration building was purposely planned only 33 feet wide, so that it could be loaded on trucks and hauled along the highways to any point.

The Oakland Site

Somewhat the same view taken in Portland has been assumed by the Oakland authorities. As in Portland, the expense of developing this airport is being covered from the surplus revenues of the Port Commission. The Oakland site is on Bay Farm "Island," a peninsula just south of the city in San Francisco Bay. The cost of the bare land is $650,000, and no esti-

mate of the expense of improving has been completed as yet.

Runways as long as 6,000 feet can be developed on this site, thus enabling it to accommodate the heaviest planes now built or foreseen for the immediate future with a very high factor of safety.

Santa Monica's Field

Santa Monica's field is a 144-acre affair, of which 80 acres are used. It was financed through a bond issue under the California Parks and Playgrounds Act, which permits formation of an assessment district to pay for certain classes of public improvements.

Sources of Information on Airports and Aviation

The foregoing article was written for THE AMERICAN CITY just before the intrepid Lindbergh made airport development an inescapable problem for American municipal officials. The information on which this timely outline of progress in the West is based was gathered by the author for the Airport Committee of the Board of Supervisors of the City and County of San Francisco, and its publication is with the consent of that Committee. Mr. Lane's investigations, which covered a trip of some seven weeks, involved studies of surfacing, meteorological conditions, obstructions in air approaches, physical connections, distances from post offices, hangars and other improvements on the fields, lighting equipment, and revenues, both real and anticipated, of the major airports in the West Coast cities.

Municipal officials, chamber of commerce executives, and other readers of THE AMERICAN CITY interested in airports and aviation, can secure information of much value from the following sources:

Aeronautical Chamber of Commerce of America, 300 Madison Avenue, New York.—The 1927 Aircraft Year Book of this organization is reviewed briefly on page 117 of this issue.

Aeronautics Branch, Department of Commerce, Washington, D. C.—An Airway Bulletin in looseleaf form, a mimeographed Domestic Air News, and occasional special bulletins on construction of airports, air traffic rules and similar subjects are published by the Branch. A preliminary list of about 1,000 of the more important landing fields owned by cities, commercial organizations, business corporations, individuals and Government services has just been made available. This includes 207 cities having municipal airports completed or under construction.

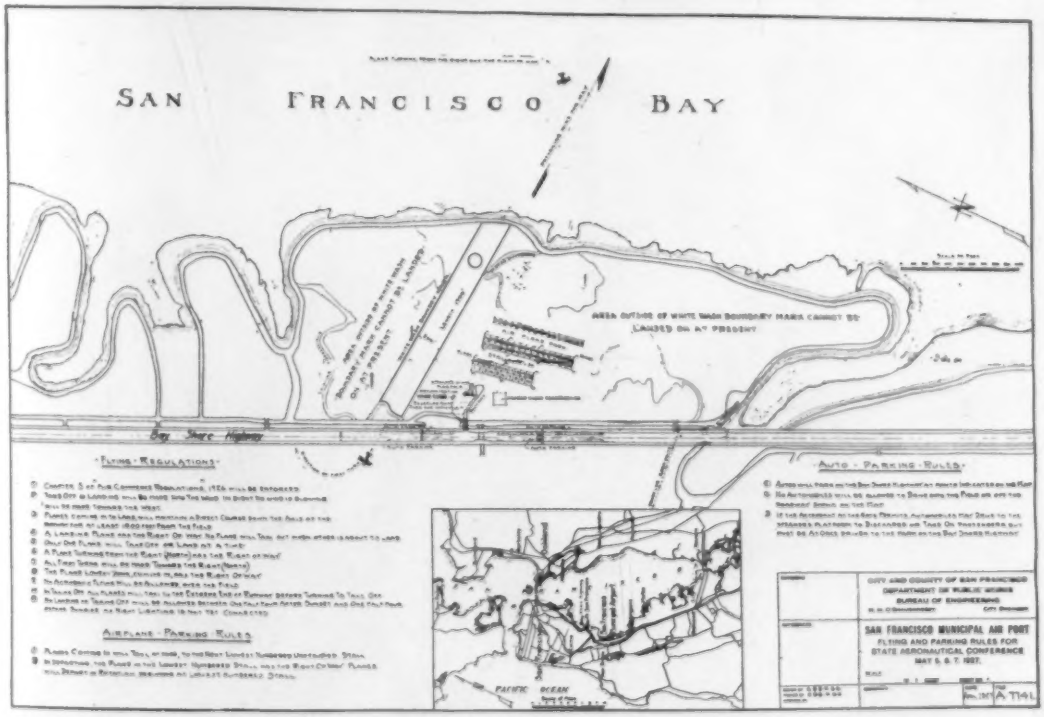
Transportation and Communication Department, Chamber of Commerce of the United States, Washington, D. C.—The Department published on April 25, 1927, an exceedingly valuable bulletin on Air Transportation, and offers the cooperation of the National Chamber in furnishing further information.

American Academy of Political and Social Science.—The May number of *The Annals*, devoted to the topic of aviation, is listed on page 117 of this issue.

"Airports and Airways."—By Donald Duke. This new book, published in June, 1927, is reviewed on page 117 of this issue.

"Transport Aviation."—A 251-page book by Archibald Black; published in 1926; $3.00.

"Civil Aviation."—A report by the Joint Committee on Civil Aviation of The United States Department of Commerce and the American Engineering Council; published in 1926; 206 pages; $2.50.


SAN FRANCISCO BAY
AREA OUTSIDE OF WHITE WASH BOUNDARY MARK CANNOT BE LANDED ON AT PRESENT
Bay Shore Highway
FLYING REGULATIONS
AUTO PARKING RULES
AIRPLANE PARKING RULES
PACIFIC OCEAN
CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING
SAN FRANCISCO MUNICIPAL AIR PORT
FLYING AND PARKING RULES FOR STATE AERONAUTICAL CONFERENCE
MAY 5, 6, 7, 1927.

FLYING AND PARKING RULES FOR STATE AERONAUTICAL CONGRESS, HELD AT SAN FRANCISCO MUNICIPAL AIRPORT, MAY 5-7, 1927

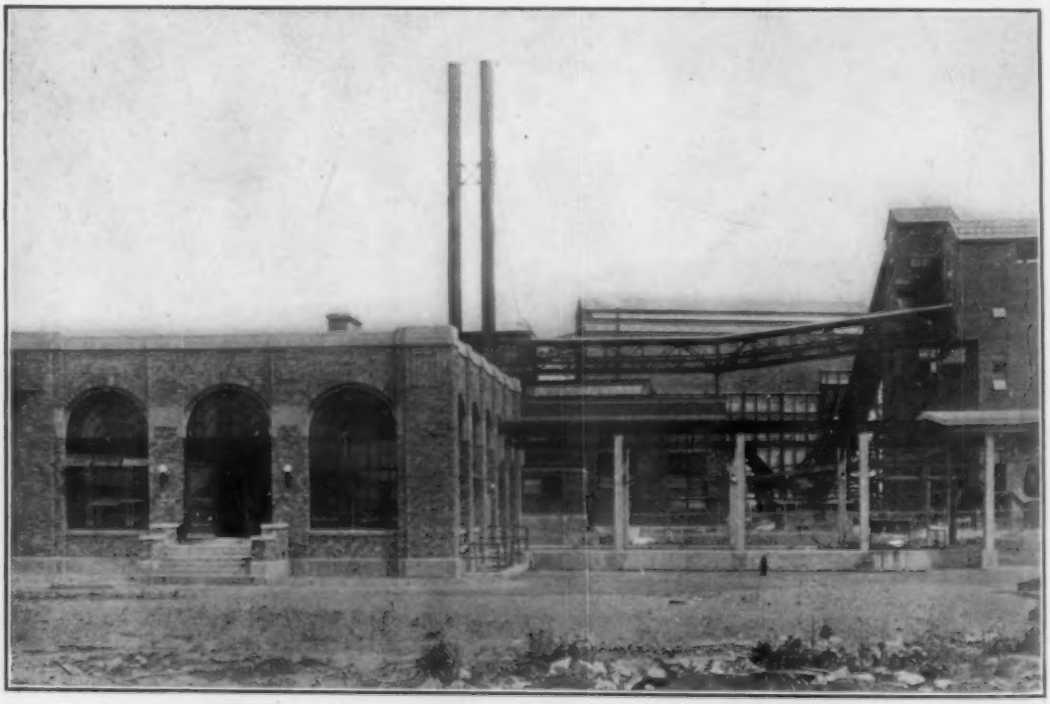
Automatic Control of Sewage at the Syracuse Sewage Treatment Plant

By E. F. Sipher

THE sewage treatment plant which was put into operation at Syracuse, N. Y., last fall, contains several unusual features. Of particular importance is the method employed to control the rate of flow of the sewage through the grit chamber, which makes use of automatically controlled motor-operated pumps to maintain the velocity of the sewage within close limits, without excessive loss of head.

Because of the topography of the city it is necessary to pump the sewage up to the treating or settling tanks. The sewage enters the treatment works at an overflow chamber, which is connected to a deep-water conduit leading to Onondaga Lake, near which the plant is located. This conduit is not used except in emergencies such as floods. From the overflow chamber the sewage passes through a coarse screen, which removes sticks, logs, etc., into a three-compartment grit chamber, then through fine screens which are mechanically raked, one screen for each grit chamber, and thence into the pump well. From here the sewage is pumped, by three Morris 24-inch horizontal pumps of 18 million gallons daily capacity each, driven by 75-h.p. wound-rotor motors, through a 48-inch force main and venturi meter to the settling tanks, where the sewage is clarified. There is one similar pump in reserve. The effluent passes from the grit chamber through a conduit to deep water in Onondaga Lake. The sludge as it settles is slowly forced to the center of the settling tanks by the plow blades on the revolving arms of the Dorr clarifiers and drawn out by sludge pumps and forced through a 4-inch main and buried with the wastes from the Solvay Process Company.

When the velocity of sewage is reduced to one foot per second, the grit will settle out, but the organic matter remains suspended and passes on with the sewage. With velocities lower than one foot per second, the organic matter begins to settle out, and with higher velocities than one foot per second, the grit is carried over into the pump well. Control of the velocity of the sewage may be obtained by using a weir in the grit chamber, or by the shape of the grit chamber and means for con-



GENERAL VIEW OF THE SYRACUSE SEWAGE PUMPING-PLANT

MAIN PUMP-ROOM AND SWITCHBOARD AT THE SYRACUSE SEWAGE PLANT

trolling the rate of pumping within close limits. With the weir there is a loss in efficiency due to having to raise the sewage from the pump-well level, which of necessity must be lower than the grit-chamber level. Where the grit-chamber velocity is controlled directly by the rate of pumping and without a weir, the sewage level in the pump well is the same as in the grit chamber. Therefore, with the latter arrangement the pumps have less work to do.

The grit chambers at the Syracuse plant are without weirs and the velocity is controlled by means of pumps. There are three of these chambers, one being used for each pump in service. Overhead is a direct-current, motor-operated traveling crane carrying a grab-bucket, for removing the grit. This motor is the only direct-current application in the entire plant, and it receives its current from a motor-generator set in the main pump-room. Each grit chamber has a motor-operated sluice-gate at the inlet end, controlled by push-button from the main switchboard, and a mechanically raked screen at the outlet end driven by induction motors which are also controlled from the main switchboard.

The plant is designed to pump a maximum of 55 million gallons per day, with three pumps in service. Anything in excess of this is by-passed to the lake. In the main pump-room along one wall are two vacuum pumps driven by squirrel-cage motors controlled by automatic auto-starters. Here is also located the motor-generator set for furnishing direct current to the grit-chamber crane. Down through the center of the room are the main pumping units, four in number, only three ever being used at one time, the fourth being a spare unit.

The entire plant, except the grit-chamber crane and the sludge pumping-station, is controlled from the eighteen-panel switchboard. The power used on all motors except the direct-current crane motor is 440-volt, 25-cycle, and all control circuits on the face of the panel are 110-volt.

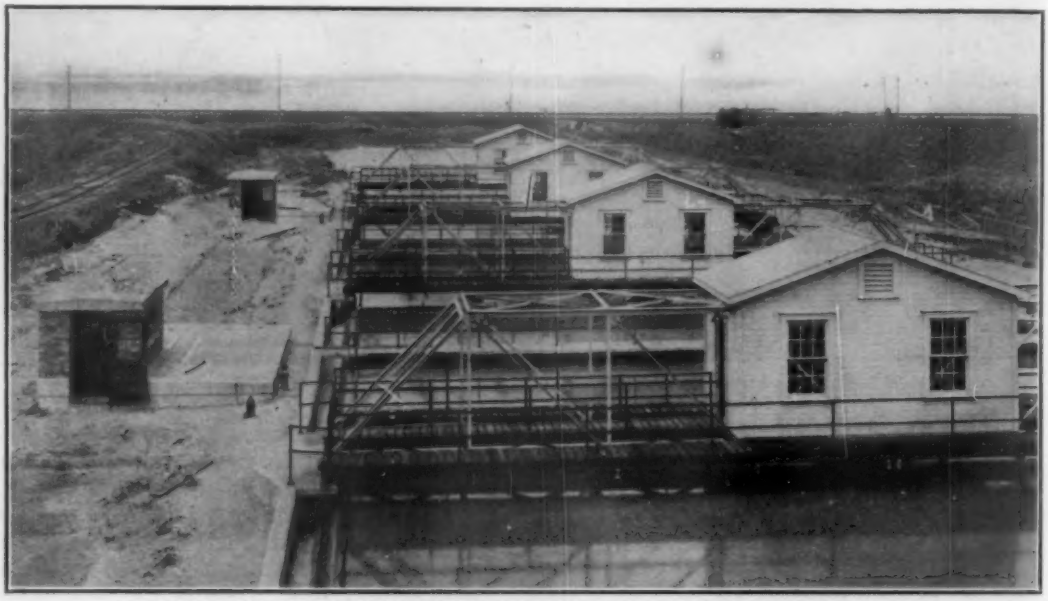
The first panel at the left is the circuit-breaker or entrance panel, providing metering instruments and overload and no-voltage protection for the entire plant. Adjoining are five panels for the control of the main pumps, then two panels for meters for the main pumps, and a panel for auxiliary apparatus such as vacuum pump motors, sump pump, sluice-gates, screen

rakes, etc., with ammeters and push-button control. A protective circuit-breaker panel with ammeter is provided for the cables to the sludge pump-houses. There is a panel for the motor generator set with meters and a carbon breaker for protection of the direct-current line to the grit-chamber crane and a lighting panel for the main circuits of the plant lighting system. There are also two panels for the control of the sluice-gates, four panels for the hydraulic meters and instruments, and valves for controlling the hydraulically operated gate-valves on the main pumps.

As stated before, the velocity through the grit chamber is controlled by the rate of pumping or the speed of the pumps. The level of the water in the pump well is used to regulate the speed by means of a float and special Westinghouse control apparatus. The total working range of elevation in the pump well and grit chamber is approximately 3.6 feet. Any rise in the sewage above this point indicates a flood condition, and the sluice-gates are throttled down to keep the maximum output of the plant down to the 55-million-gallon-per-day rate; any sewage in excess of this amount escapes to the shore relief conduit through the overflow chamber. At each 0.2-foot change in elevation of the sewage in the pump well there is a change in pump speed. When more than one pump is running, all pumps are operated at the same speed and discharged into a common header.

The controller designed to take care of these conditions consists of a contact-making device connected by a sprocket and chain to a float in the pump well. This device makes a contact at every 0.2-foot change in sewage elevation. A horizontal rack or slider with its contact-making parts moves along a row of fingers which make contact with the large drum. The contact-making device at the same time resets for the next 0.2-foot change in level. The only function of the float is to give the starting impulse to the pilot motor by means of the contact-making device; all other operation of the master control is carried on by motor drive. The float can therefore be relatively small and readily responsive to small changes in elevation of sewage. The large drum is divided into three sections, one for each condition of one, two, and three pumps in operation, and there are seventeen fingers in contact with this drum, the same as the number of 0.2-foot divisions of operating range of elevation in the pump well. Each section of the drum consists of two segments separated by a "zigzag" strip of insulation, one giving forward direction or increase in pump speed, and the other reverse or decrease in pump speed. These sections are automatically selected by relays, depending upon the number of pumps in operation, no matter which of the four pumps are being used. It is not necessary to change any jumpers in order to change the sequence in which the pumps are to be run.

The master drum is connected by a clutch and operating shafts to four Westinghouse cam controllers which vary the resistance in the secondary of the main pump motors, there-



SETTLING-TANKS AT SYRACUSE SEWAGE WORKS, SHOWING DORR CLARIFIERS

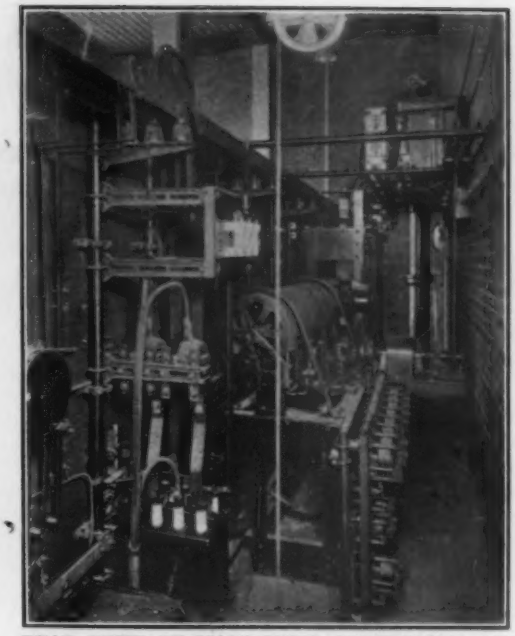
by changing the speeds.

The control of the main pump provides also for hand operation, which can be obtained at any time by disengaging the clutches by raising a latch on the front of each motor panel. A hand wheel on each motor panel provides for independent hand operation. A large hand wheel is also provided, so that any one, two or three controllers may be operated by hand together.

As the sewage level changes, the pumps will be controlled automatically within their capacity, from the float. When the capacity of the pumps in service is reached, a set of contacts on the control cause signals to be given, indicating to the operator when to start the additional pumps, or to stop one of the pumps already in service. First, a yellow light appears as a warning, then a red light appears on the next notch and a gong rings until the operator starts the next pump or stops one, as the case may be, when the light goes out and the gong stops ringing.

To start a pump, the operator goes to the panel for that motor, pushes the control button, releases the clutch latch and slowly turns the hand wheel to the right until the clutch engages. Relays then operate to select another section of the drum, which selects the proper speed for the number of pumps now in service and turns the master drum with the S controllers to that point. To stop the pump, the push-button is pressed for stop, and the clutch latch raised. The operator can therefore run any desired sequence on the pump, and thereby keep the pump wear even.

In case of failure of voltage, the control will automatically bring the secondary resistance controllers back to the off position as the first operation after voltage is restored, then start up the motors that had previously been running and bring them up to the speed corresponding to the level of sewage in the pump well. In case of an overload on the pump motor, its primary contactor is opened by the overload relay, which must be hand-reset before the pump can again be started.



REAR VIEW OF MAIN PUMP CONTROLLER AND MASTER CONTROLLER

The control is also protected against broken or slack chain and sewage levels above and below the normal range. Should any of the automatic parts of the control become out of order, the operator can at once shift over to hand operation by disengaging the clutches, and continue running the pumps while making repairs.

The sewage treatment plant was built and designed under the direction of the Syracuse Intercepting Sewer Board; Glenn D. Holmes, Chief Engineer. The electrical equipment, except the sluice-gate control, was made by Westinghouse, the pumps by the Morris Machine Works, and the equipment installed by the Roberts Filter Manufacturing Company.

All Ontario Vehicles Must Carry Lights

AS an additional safety precaution, the Highway Traffic Act of Ontario has been amended to require horse-drawn vehicles to carry lights, according to advices to the Department of Commerce from the Trade Commissioner at Ottawa, Lynn W. Meekins.

As quoted in the *United States Daily*, the full text of Mr. Meekins' description of the amendment follows:

"Every vehicle other than a motor vehicle or a bicycle, which are subject to special regulations, when on a highway after dark and before dawn, shall carry in a conspicuous position on the left side thereof a lighted lamp showing white to the front and red to the rear. Any lamp so used shall be clearly visible at a distance of at least 200 feet.

"The Provincial Highway Department may by regulation permit a reflector of a design approved by the Department to be displayed instead of a lighted lamp on vehicles commonly used for conveying inflammable materials or vehicles which are structurally unsuitable for carrying lighted lamps. The provisions will not become effective until October 1, 1927."

A New Deal for the Incorporated Villages of New York State

By William P. Capes

Director, New York State Bureau of Municipal Information

On July 1 the new General Village Law, adopted by the 1927 Legislature, becomes effective in some 450 incorporated villages throughout the state of New York. Establishing the short ballot principle and increasing the powers of the villages to conduct their own affairs, the new law gives to all four classes of villages in the Empire State a form of government which it believes will prove to be as efficient as the general village law of any state in the Union. In a statement prepared for Governor Smith the important features of the act have been summarized as follows: ,

The title of the chief executive is changed to Mayor and his term of office is increased to two years. Of the twelve states which govern villages by general law, New York is the only one which has continued the title of President for the village chief executive.

The short ballot principle has been adopted. Under the old law a village might elect as many as fourteen officials. The present measure provides for the election of only the chief executive and the board of trustees. These elective officials appoint all other officials.

Concentrated power and responsibility are provided, and the responsible officials are made directly accountable to the people. The chief executive is the head of the village government in fact. Under the old law he was the head in name only. The board of trustees becomes the responsible legislative and policy-determining body, with adequate checks by the people. The chief executive and board are made responsible for the appointment of the administrative officials, but the plan provides power for them to expand or contract the administrative machinery to meet local needs and to fit a village of any size. The number of trustees is reduced to four or six in first and second class villages and to two or four in third and fourth class villages.

Mandatory and permissive referenda.—The old law required a mandatory referendum on almost everything that a village wanted to do. The number of subjects on which a referendum is required has now been reduced to seven. The mandatory referendum on all other subjects has been replaced by a permissive referendum, so that if a substantial number of people are not satisfied with the action of the trustees they can force the trustees to submit their acts to a vote of the people. This eliminates the necessity of a referendum on non-controversial matters, but provides a check whenever the elected officials fail to interpret correctly the will of the people.

A real budget system is made mandatory for each village so that both the officials and the taxpayers will know at the beginning of the year what improvements are to be made and services rendered and how much government will cost. Provision is made for the participation of the people in the preparation and adoption of this budget.

Preparation of assessment roll.—Taxes will be based on the last completed assessment roll, thereby permitting the village to begin the collection as soon as the budget is adopted, and saving the municipalities thousands of dollars in interest money which they have heretofore had to pay on money borrowed to run the government until the taxes were collected. Heretofore villages have been compelled to prepare their assessment rolls in a very short period of time. This has resulted in an inaccurate, incomplete and inequitable assessment roll. Under the new plan, villages will have from April until January to assess property, hear complaints and complete their rolls. It is believed that this will result in a more accurate and satisfactory assessment of property. The roll will be prepared by one or three assessors appointed by the board of trustees, but in third and fourth class villages, the board may act as assessors. The roll, when prepared by separate assessors, will be subject to action upon complaint by a board of review.

A plan for the collection of delinquent taxes has been provided. Heretofore no effective method had been authorized. As a result, villages have carried on their books a large amount of delinquent taxes. The new law provides that either the treasurer or the clerk shall collect the taxes without fee. After a certain period one per cent per month interest will be added. Those taxes unpaid after a certain period will be sent to the county treasurer and he will sell the property at the same time that the county tax sale is held. The county will reimburse the villages for the amounts uncollected, but will retain the interest and all other amounts collected at the sale. This plan is the same as now provided for the collection of delinquent school taxes. Westchester County is excepted from this provision, as it has a special method of collecting delinquent taxes. It is believed that this plan will greatly reduce the number of delinquent taxpayers, will materially assist in the search of titles, and will not materially increase the work of the villages or county officials. Villages are empowered to compromise and settle all delinquent taxes now on their records.

Elimination of tax limitations.—The present law provides for a larger number of tax limitations. All of these have been eliminated and a limitation of 2 per cent of the assessed valuation has been placed on all appropriations, exclusive of bonds and interest and any proposition approved by the people. This does not increase materially the taxing power of any village, but it does permit the people of each municipality and the officials to use the tax money for municipal purposes and within the 2 per cent limitation as they see fit. The poll tax is abolished.

Creation of separate boards.—Under the old law, a village in New York State might create, by the adoption of a proposition, as many as nine different boards to administer as many municipal ac-

tivities. Whenever one of these boards was created, there was conferred upon each all of the powers, liabilities and duties of the president and trustees as far as the same related to the municipal activities which it is created to administer. In other words, powers over these municipal functions were transferred from responsible elective officials to appointed representatives accountable to no one. Government by boards or commissions not accountable to the people is now quite generally condemned. This serious defect in the law has been remedied by providing that separate boards may be created and abolished by boards of trustees and that when created they shall be under the supervision of the trustees. Boards cannot be abolished except after a hearing.

The manager plan of government may now be adopted by any village. This is subject to a mandatory referendum.

Nine mimeographed bulletins, outlining in greater detail the legal procedure for villages under the new law, have been issued by The New York State Bureau of Municipal Information. A set of these bulletins can be secured, by any interested official or civic organization, on application to the Bureau at City Hall, Albany.

Building-Line Setback Principle Upheld by U. S. Supreme Court

ANOTHER distinct advance in the legal status of zoning regulations was made on May 31, when the United States Supreme Court sustained as constitutional an ordinance of the city of Roanoke, Va., under which a property owner desiring to erect a building was required to set it back a considerable distance from the street. The particular case (Gorieb v. Fox, et al., Members of the City Council of Roanoke, Va., 2 U. S. Daily, 957) by which the ordinance was brought to the attention of the Court is a rather narrow one; but the Court's opinion, written by Justice Sutherland, is broad in scope.

In the present case the City Council of Roanoke has passed an ordinance authorizing the setting-back of building lines at least as far from the street as are 60 per cent of the existing buildings on one side of a given block, the Council reserving the right to make exceptions. For the specific block in question, which was within the residential district, the building line thus established was slightly over 42 feet back from the street. Gorieb, the petitioner, had been granted permission by the Council to erect a brick store building 34-2/3 feet back; he sought by mandamus to obtain a permit to build up to the street line, alleging the unconstitutionality of the setback ordinance. The Supreme Court, in affirming the judgments of the courts below, including the Virginia Supreme Court of Appeals, not only stated that the petitioner did not appear to have been injured by the alleged unconstitutional feature, and in fact had been granted a substantial exception in his favor, but went on to sustain the ordinance both as to the principal of building-line setbacks and as to the reservation by the Council of the authority to make exceptions. ("Setbacks," as here meant, should not be confused with architectural setbacks or step-backs, common in New York City and found to some extent elsewhere, made for the purpose of conforming to the prescribed relation of building heights to street widths.) The Court says, as to the setback principle:

"It is hard to see any controlling difference between regulations which require the lot owner to leave open areas at the sides and rear of his house and limit the extent of his use of the space above his lot and a regulation which requires him to set his building a reasonable distance back from the street. Each interferes in the same way, if not to the same extent, with the owner's general right of dominion over his property. All rest for their justification upon the same reasons which have

Constitutionality of Comprehensive Zoning Now Firmly Established

This case forms the fourth in a series of recent decisions in which important principles of zoning have been approved by the United States Supreme Court. The others are Euclid v. Ambler Co. (1), 272 U. S. 365, decided November 22, 1926, wherein the principle of police-power zoning was emphatically endorsed; Beery v. Houghton (2), decided March 21, 1927 (no written opinion), wherein a four-family apartment house was excluded from a one-family residence district; and Zahn v. Board of Public Works (3), 2 U. S. Daily, 803, wherein a business building was excluded from a residence district.

(1) See THE AMERICAN CITY for December, 1926, p. 771, and January, 1927, p. 125.
(2) See THE AMERICAN CITY for April, 1927, p. 444.
(3) See THE AMERICAN CITY for May, 1927, p. 744.

arisen in recent times as a result of the great increase and concentration of population in urban communities and the vast changes in the extent and complexity of the problems of modern city life. (Euclid v. Ambler Co.)

"State legislatures and city councils, who deal with the situation from a practical standpoint, are better qualified than the courts to determine the necessity, character and degree of regulation which these new and perplexing conditions require; and their conclusions should not be disturbed by the courts unless clearly arbitrary and unreasonable. (Zahn v. Board of Public Works, and authorities cited.)

"The property here involved forms part of a residential district within which, it is fair to assume, permission to erect business buildings is the exception and not the rule. The members of the City Council, as a basis for the ordinance, set forth in their answer that front yards afford room for lawns and trees, keep the dwellings farther from the dust, noise and fumes of the street, add to the attractiveness and comfort of a residential district, create a better home environment, and, by securing a greater distance between houses on opposite sides of the street, reduce the fire hazard; that the projection of a building beyond the front line of the adjacent dwellings cuts off light and air from them, and, by interfering with the view at street corners, constitutes a danger to the operation of automobiles.

"We cannot deny the existence of these grounds; indeed, they seem obvious. Other grounds, of like tendency, have been suggested. The highest court of the state, with greater familiarity with the local conditions and facts upon which the ordinance was based than we possess, has sustained its constitutionality; and that decision is entitled to the greatest respect and, in a case of this kind, should be interfered with only if in our judgment it is plainly wrong (Welch v. Swasey, 214 U. S. 106), a conclusion which, upon the record before us, it is impossible to reach."

California Court Also Upholds Setback Principle

Prior to this decision by the highest federal court, a state court in California upheld a Los Angeles ordinance that provided for the establishment of setback lines under the police power, in the case of Thille v. Board of Public Works (4), decided on April 5, 1927, by the Second District Court of Appeal. The plaintiff had sought a permit to erect a garage, without complying with the setback line, in a street where the City Council has established such a line 30 feet back from the street. Besides the brief of City Attorney Stephens, of Los Angeles, a brief of *amici curiae* was filed at the request of the League of California Municipalities by City Attorneys William J. Locke of Alameda, J. Leslie Johnson of Stockton, Archer Bowden of San Jose, S. J. Higgins of San Diego, Leon E. Gray of Oakland, Robert L. Shinn of Sacramento, John J. O'Toole of San Francisco, Loren E. Butts of Fresno and Earl J. Sinclair of Berkeley. This brief stressed the similarity of the setback principle to that requiring yard areas for sunlight and fresh air, and the general importance of these latter factors from the standpoint of public health. It also urged the approval of the setback principle as a protection to owners of existing buildings in conformity with the established line; as being desired by the great majority of those affected thereby; as reducing the danger of vehicular accidents at street intersections and at private driveways; and as a safeguard against conflagration; and emphasized that the principle is one of regulation under the police power rather than of eminent domain, which would involve the taking of private property for public use, with compensation therefor. In arguing the latter point it was taken for granted that matters of public health, safety and welfare came within the police power; as to matters of public convenience less assurance was displayed by the attorneys. The Court, however, took the broad view in this regard, saying:

"Police power is not subject to definite limitations, but is coextensive with the necessities of the case and the safeguards of public interest. It embraces regulations designed to promote public convenience, or the general prosperity, or welfare, as well as those specifically intended to promote the public safety, or the public health. Whether it is a valid exercise of the police power is the question in this case, and that power, as far as it is capable of definition, extends not only to regulations as to morals, and safety, but to those which tend to promote the public convenience."

A note of warning might well be sounded in connection with setback ordinances, with reference to their clarity. One attack upon the Roanoke ordinance was on the score of vagueness, particularly as to the meaning of the 60 per cent provision. The Supreme Court held that this did not affect the particular case at bar; but as it is conceivable that a case could arise where the meaning of some such provision would be important, it is desirable that setback and other zoning ordinances be clear in meaning.

The regular monthly department of

Zoning Notes

appears on pages 113 and 115 of this issue.

In this department, prepared for The American City by Frank B. Williams, Esq., brief comments have been published during the last twelve months on 91 court decisions, and there have been listed during the same period 51 new zoning statutes and ordinances.

(4) Listed in THE AMERICAN CITY for June, 1927, p. 855.

Municipal Administration the Pivot of American Progress

By Samuel A. Carlson

Mayor, Jamestown, N. Y.; President, New York State Conference of Mayors and Other Municipal Officials

IN the earlier days, even the most elementary public functions were performed by the individual. Today, municipal administration has come to be regarded as the pivot of American progress. It is a great business and a science which vitally affects the people of every city and village. Those of us who have been entrusted with official duty owe it to ourselves and to the people of our community to strive diligently for the wisest and best solutions of these problems. No community exists for itself alone. Only as we deliberate and work together can we develop efficient municipal service.

It is conceded that no other government comes so close to the daily life of all of us as city government. Not only is the physical welfare of the citizen affected by the character of his city government, but his intellectual growth, his mental enjoyments and his moral development are largely open to the influences that are set in motion by the municipality.

The city government touches his life at every turn. Whether he walks abroad or drives in a motor car, when he is in the street, in the park or in his home, the influence of the city government is the determining factor in his safety. His place of business with his power to earn a living is under city protection from thieves or fire. The condition of the street near his home may determine the health of his children. The water that is piped into his home by the city carries with it comfort and cleanliness or filth or death. The milk that is left at his door has no official guarantee but that given by the municipality, and the vigilance of the city finally determines whether it is wholesome food or a germ-laden poison.

The education and recreation of his children, the moral influences that surround his home, are under the city's control. Asleep or awake, he and his loved ones are the subject of this all-pervading influence. It never stops. The very air that he breathes is clean and life-giving or foul and disease - infested, according, in some degree, to the quality of the municipal government which he sustains.

It is in the modern city that our social and economic issues are pressing forward for solution. It is in the modern city that we are forced by necessity to meet the burdens of complex life. Whether we like it or not, the city must constantly take on new activities and assume new burdens. Everything tends to encourage this; while many things render it imperative. We cannot live in close association without the assumption of common activities and without submitting ourselves to certain regulatory rules. Not only do health, comfort and happiness demand this; self-protection necessitates it. . . Municipal ownership is justified whenever a particular service can be rendered more acceptably by the city than by a private agency.

Municipal government has reached the highest standard of efficiency wherever blind partisanship has been supplanted by an awakened citizenship; where the ballot has been shortened so that public attention can be focused on legislative candidates only; where fair representation is accorded to all elements; where experts and administrative officials are chosen by the appointive method; where salaries are commensurate with responsibilities entailed, and

For Simplified Charters and a Large Measure of Home Rule

In his presidential address at the recent New York State Conference of Mayors and other Municipal Officials, excerpts from which comprise the accompanying article, Mayor Carlson urged, as the chief essentials to good city government, a simplification of our political machinery, a better basis of legislative representation, and absolute freedom of public discussion. In opposing archaic handicaps to municipal efficiency, he said:

"The limitations which hamper our cities were intended to stop maladministration, but in reality these limitations operate to prevent the achievement of greater and better things in municipal life. The granting of enlarged powers to municipal authorities compels the people to take a deeper interest in city affairs. This develops in the community a civic consciousness that tends to a more careful selection of pubic servants and consequently a loftier character of public service."

where the tenure of office for officials succeeding themselves has been lengthened sufficiently to insure stability and experienced service.

When the people of a city come to understand how closely that city's government is interwoven with their lives and fortunes, they will not be content unless those charged with the conduct of the municipality deliver the most efficient government humanly possible.

Suggested Uniform Standards for Traffic Control Signals

ON account of widely varying local conditions, it is impractical to standardize on any specific type of traffic signal or signs or any particular layout of control devices. It is possible, however, to recommend a uniform meaning of signals, which, if required by state law or, in the absence of such, if adopted by all municipalities in New York State, will great simplify driving and overcome the present complexities due to lack of uniformity. It is also possible to offer general recommendations regarding the location and height of signal devices.

It would appear, in the light of experience and the high development reached, that it is now feasible to standardize the more important types for specific duty. The manufacturers' attention, through their trade affiliations, is at this time invited to this phase of the situation, to the end that the present high investment — high undoubtedly as a result of the many types and sizes manufactured— may be lowered by the use of a limited number of types and a more uniform and standardized product. This committee would be glad to have the cooperation of the manufacturers in this respect.

At the New York State Conference of Mayors and Other Municipal Officials

held at Niagara Falls, May 31-June 2, 1927, Harry R. Hayes, City Engineer of Utica, as Chairman of a Joint Committee of the Conference and of the Empire State Gas & Electric Association, submitted a report* on Traffic Control Signal Systems, part 2 of which is herewith published in full. In his address before the Conference, Mr. Hayes called special attention to the fact that the traffic problem is essentially an engineering one and that its effective solution must be based on accurate facts and engineering principles. Prior to the installation of any traffic signal system, Mr. Hayes urged a thorough study of the general traffic problem of the locality, this study to include:

1. **A traffic count to determine the heaviest-traveled routes, the relative importance of various streets, particularly in the congested section, the types of vehicles and the hourly variation in the traffic flow**
2. **A study of the causes, locations and trend of street accidents**
3. **A study of existing physical conditions at locations where traffic is congested or where numerous accidents occur**
4. **A study of the available parking in the business section and the actual effect of parking on business and the movement of traffic**

* See department of Municipal and Civic Publications, page 117 of this issue

Meaning of Railroad Signal Colors

For many years the railroads have been experimenting with and developing signal systems utilizing colored lights. As a result of this research, certain colors have come into universal use and have acquired definite meanings which are now standard. A red light is an order, very definite and in no case to be ignored, to the engineer to stop. Failure to obey this order brings severe penalties. An amber light is a warning to the engineer. He need not stop, but must proceed with caution. A green light means a clear track and gives the engineer permission to proceed freely.

Other Uses and Meanings of Colored Lights

Colored lights have also acquired other meanings quite distinct from and frequently contradictory to those which have become standard in railroad operation. Red lights are placed at the street excavations or on temporary obstructions, in some cases merely as a warning of danger, while in other cases a full stop is necessary. Red lights are also quite generally used to indicate fire-alarm boxes, frequently so located that they may easily be mistaken for traffic control signals. Inside buildings they denote fire exits, and in this case they really mean "Go" instead of "Stop." Green lights are used to indicate police stations and police call boxes. Automobiles are equipped with red tail-lights, and in some states this is compulsory. A recent development is the stop signal on the rear of the vehicle, in addition to the tail - light. Some of these signals show red, some green and some amber. Devices are also on the market to indicate turns which are about to be made, and some cars, particularly taxicabs, are being equipped with numbers of colored lights, principally red, green and amber, for advertising or display purposes.

Colors Applied to Traffic Signals

The use of colored lights to regulate street traffic is still in the development stage. Generally, an attempt has been made to adapt railroad signal methods and meanings to street traffic. The conditions are different and some confusion has been the natural result. This, with the variety of other uses of the same colors, makes it practically impossible for the motorist or pedestrian to know what is expected or required. Steps should be

taken at once, first, to standardize on the colors to be used for the regulation of street traffic; second, to adopt definite and uniform meanings for such colors; third, to eliminate other uses of these colors where a different meaning is intended. Mention has been made above of some of these other uses.

Colors to Be Used

COMMITTEE RECOMMENDATIONS

The only colors which should be used in traffic control signals are red and green.*

In traffic warning signals, amber should be used exclusively.

Meaning of Colors

COMMITTEE RECOMMENDATIONS

Red should always mean "Stop." It should never be used as a warning or cautionary signal.

Green should mean "Go."

Amber should mean "Proceed with caution." It should be used exclusively for precautionary signals, either fixed or flashing.

In order to avoid confusion, all other use of red, green or amber lights, so located that they may be mistaken for traffic signals, should be discontinued.

Intermediate Intersections

In some instances, due to the expense involved, traffic control signals are not placed at every intersection on a street where traffic control is desirable. Such a plan is not the most effective and should be considered only as a temporary one, intermediate signals being installed as soon as the finances permit. Until the system is completed, however, some plan should be adopted to prevent traffic from massing at the intersections where the signals are in operation and to inform traffic in cross-streets of its approach to a signal-controlled street.

COMMITTEE RECOMMENDATIONS

When traffic control signals are placed several blocks apart, cross-traffic at intersections where no signal is located should be governed by the movement of traffic on the controlled street. Compliance with this provision cannot, however, be enforced unless an officer is on post at the crossing or an appropriate sign or signal is provided to warn traffic that it is approaching a controlled intersection.

* The city of Yonkers is conducting an interesting experiment at this time. During one of the committee meetings, the question of eliminating the green light entirely and using only the four-way red signal was discussed. The theory was that for traffic-control purposes, it was only necessary to stop the motorist and that he might be depended upon to go without giving him a green signal to that effect. Some of the members felt that, having become used to the green signal, the average motorist might not start again after having been stopped by the red until a green signal was flashed. The city of Yonkers obtained one of these signals which first shows red in an east-and-west direction and then in a north-and-south direction. It has been carefully observed since its installation. The result of this observation has been that only 2 per cent of the motorists who are halted by the red signal hesitate before proceeding when the red is turned out.

The obvious advantage of it is one of cost. The signal itself costs half as much as the double signal showing both red and green. The annual cost of operation and maintenance is about two-thirds of the cost of the double signal. Exact figures have not yet been obtained on the cost of installation, but it is thought that on account of its lighter weight, it can probably be installed at lower cost than the combination signal.

Turns

One of the most difficult and, at the same time, one of the most important problems in regulating traffic is the matter of turns, particularly left turns. Naturally, in the absence of any standard code, many different methods for solving the problem have been adopted, based on strictly local conditions. They may be entirely satisfactory so far as local traffic is concerned, but there is now so much long-distance and intercommunity traffic that standardization has become highly desirable, if not absolutely necessary.

The replies to the questionnaire submitted to the New York State cities by the New York State Bureau of Municipal Information indicate that at least nine different methods are used in this state alone for making turns at intersections where traffic is regulated by traffic control signals. The committee feels that purely local conditions should not be permitted to govern regulations affecting turns, but rather that all municipalities should adopt similar regulations on this point. The problem, therefore, is to discover the methods or rules which, on account of their logic, will appeal to the motorist and which will be most generally satisfactory and effective in reducing accident hazards and facilitating the movement of traffic.

Left turns interfere with and are dangerous to both vehicular and pedestrian traffic. Right turns may retard vehicular traffic, but are hazardous chiefly to pedestrians.

As far as is physically possible, drivers wishing to make a right turn should be encouraged to keep near the right curb; those planning a left turn should keep near the center of the street and those wishing to go straight ahead should stay between these two lines. Some cities have found it advisable to indicate these three traffic lanes by markings on the street surface where the street is of sufficient width. (Fig. A.) In the majority of cases found in the congested areas of cities, the width of the street will only permit of two lines of vehicular traffic in one direction. Even here, however, drivers should keep near the side of the driving space toward which they wish to turn. (Fig. B.)

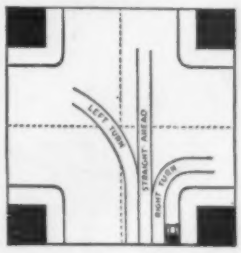


Fig. A.—Turning Lanes Where Three Lanes Are Possible

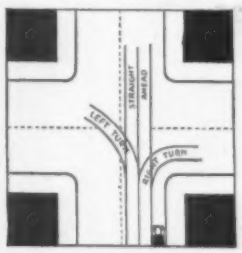


Fig. B.—Turning Lanes Where Only Two Lanes Are Possible

The left turn, where the corner is "cut," produces one of the most hazardous conditions at an intersection. Vehicles making such a turn intersect other lines of moving vehicles at dangerous angles and approach pedestrians from unexpected positions. (Fig. C.) In the opinion of the Committee, all left-hand turns should be made to the left of the center of the intersection (Point 1, Fig. D), as shown by solid line, and around the points marked by the center of one street and the nearest curb line of intersecting street (Points 2, Fig. D). If, on the other hand, traffic were to follow

a course to the right of Point 1, Fig. D, shown by dotted line, it would twice intersect traffic, making left turns and approaching from the opposite direction. Keeping to the left of Point 1, no intersection with this traffic is encountered.

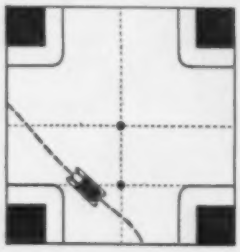


Fig. C.—Improper Method of Making Left Turn

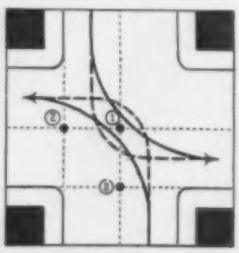


Fig. D.—Proper Method of Making Left Turn

Fig. E indicates the conditions at an intersection when turns are made with the green light, the left turn being made properly. The drivers planning to turn from North Street move in line with other moving vehicles until the actual point of turning is reached, at which place they fall out of line on the side in the direction in which they wish to proceed. They do not interfere with traffic on East Street, which at the time is stopped. The right-turning vehicle crosses one line of moving pedestrians (Point 3). The left-turning vehicle crosses one line of moving vehicles (Point 1) and one line of moving pedestrians (Point 2), but does not have to fall in line with vehicles on East Street.

Fig. F indicates the conditions at an intersection when turns are governed by the red light. Vehicles in North Street are stopped, but a driver wishing to turn must proceed around the stopped vehicles, which are in his own line of approach. A vehicle making a right turn crosses the path of moving pedestrians (Point 3) and must fall in line with vehicles in East Street (Point 5). Left-turning vehicles cross the pedestrians' path (Point 2), cross moving vehicles in East Street (Point 1) and must fall in line with vehicles on the far side of East Street (Point 4).

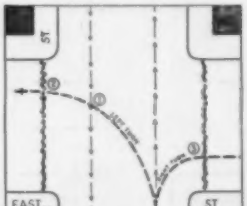


Fig. E.—Turns on Green Signal

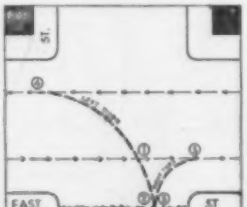


Fig. F.—Turns on Red Signal

If a red light is to be interpreted as an order to stop, and a green light as a permit to proceed, these meanings, to be consistent, should apply whether traffic is to proceed straight ahead or is about to make a turn. To specify that a driver wishing to make either a left or a right turn should stop on green light and proceed on the red, is inconsistent and tends toward confusion.

COMMITTEE RECOMMENDATIONS

At all intersections where traffic is controlled by signal lights, turns should be made on green light only, except:

a. As otherwise directed by a police officer on duty at intersection, who should have full authority over all turns.

b. Where diagonal streets, short blocks or other unusual traffic conditions make a variation necessary or desirable, and in such cases directions to traffic should be clearly posted.

Pedestrian Traffic

The following extract is taken from the report of the Second National Conference on Street and Highway Safety:

"In view of the fact that fatal collisions of motor vehicles with pedestrians, already amounting to 60 per cent of the total number of fatal traffic accidents, are increasing at a rate out of all proportion to the rate of increase in other traffic fatalities, the education and regulation of pedestrians as well as of drivers should be given greater attention than at present. Pedestrians and motorists should bear a considerate attitude each to the other.

"In cities, pedestrians should be instructed, urged and required to keep within the boundaries of designated safety zones and crossing places, and when there is congestion, to cross only with the traffic. Motorists should be required to accord pedestrians safe and dignified use of such safety zones and crossing places. Pedestrians as well as motor-vehicle operators should be required to obey the traffic rules and regulations and should be punished by adequate fines for failure to do so."

The Committee feels that no traffic-signal system is complete unless, in addition to preventing traffic accidents and congestion, it also affords adequate protection to the pedestrian. It is the natural tendency of persons on foot to cross an intersection whenever an opportunity affords itself. It is difficult to control pedestrian traffic by signals. It would seem preferable, therefore, to provide opportunities for crossings by the use of signals to motorists, and to permit the movement of pedestrians only in conformity with the movement of vehicles.

COMMITTEE RECOMMENDATIONS

Pedestrians should be permitted to cross an intersection only in the direction of moving traffic or when all traffic is halted. This can be accomplished by local ordinance supplemented by education.

Clearing Intersections

In recommending the use of only two colors, namely, red and green, in traffic control signals, the Committee fully appreciated the need of an interval between the movement of traffic in one street and that in the cross-street. This is essential in order that vehicles, and particularly pedestrians who have started to cross an intersection, as directed by a green light, may reach the opposite side before the traffic from the intersecting street is permitted to move. It is felt that in many instances this interval is of insufficient length to provide for the safety of pedestrians. It is the opinion of the Committee that this interval should not be designated by the use of any additional color, such as amber, as there is a tendency on the part of drivers to take advantage of the change by speeding across an intersection or by slipping ahead into it, prior to an authorized change of traffic movements. This defeats the purpose of the interval and creates an unnecessary hazard, particularly where pedestrians are involved. It is felt that if the red light is shown in all four directions during the interval, this tendency and the resulting hazard would largely be overcome. It has been suggested that the application of this plan to certain existing signal systems would involve some expense and that an alternative arrangement be made whereby the red light would overlap the green during the clearance interval. The Committee feels that such an arrangement would produce the same conditions as are now produced by the amber light and therefore would be unsatisfactory.

It further feels that the expense involved of showing red lights in all four directions would be thoroughly justified by the additional safety secured.

COMMITTEE RECOMMENDATIONS

An interval of clearance between the change of traffic signals to permit vehicles and pedestrians already in the intersection to reach the opposite side before the direction of traffic changes, may be provided and, if so, should be indicated by showing red lights in all four directions.

Location of Signals

It is impossible to suggest a standardization for the location of traffic control signals, as local street conditions and available finances will of course govern the actual layout. The Committee, however, has considered the various methods in use at the present time and has listed three outstanding plans of installation at an intersection. These are given in the order which the Committee feels should be given precedence.

(1) Four lights, one on each corner, each light showing only in one direction, the controlling light in each case being the one on the far right corner to approaching traffic. (Fig. G.)

(2) Two lights placed on diagonally opposite corners, each one showing in two directions. (Fig. H.)

(3) One light located on one corner and showing in four directions. (Fig. I.)

The Committee believes that a signal suspended over an intersection is not so desirable as one placed on a standard and located on the side of the street.

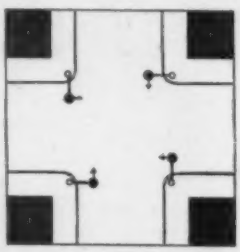


FIG. G.

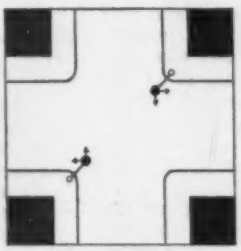


FIG. H.

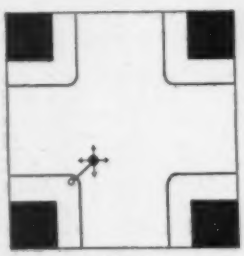


FIG. I.

COMMITTEE RECOMMENDATIONS

All traffic control signals should be so located that signal lights shall be plainly visible to all traffic to be regulated.

Height of Signals

The height at which traffic control signal lights are placed has a direct bearing on their effectiveness and general approval by the public. If placed too low, the view of them may be obstructed. If they are suspended or projecting over the highway, they may be struck by vehicles if hung too low. If too high, it may be difficult, or perhaps impossible, for a driver to see them on account of the visor of his machine.

COMMITTEE RECOMMENDATIONS

The height of traffic control signal lights should be such that they will be plainly visible to approaching traffic at a point fifty feet from the intersection.

Manual Control

It is impossible to provide a timing system which will be adequate at all times and will operate signals at individual intersections as effectively as a police officer. Under ordinary conditions a timing system will prove satisfactory, but emergencies must be met from time to time. For this reason it is essential that provision be made for operating the signal by hand in case of necessity.

COMMITTEE RECOMMENDATIONS

All traffic control signal systems should be subject to manual operation. This should be supplemental to any other method of control and for special purposes only.

Cautionary and Directional Signs and Signals

The present-day motorist, when driving from city to city, is confronted with many signs and signals of varying description, all of which, though different in design, may have the same meaning. If some uniformity of color or marking could be obtained, driving would be not only simpler but much safer, as the driver would at once know the conditions confronting him, even if in a strange territory. This is particularly true in regard to cautionary signs and signals, at such places as street intersections, grade crossings, bad curves, etc. If amber is to indicate "Caution," it should be used exclusively at such locations. The particular reason for the caution may be indicated by letter or diagrams on the face of the signal or on an illuminated sign used in conjunction with the light signal. A design for these diagrams has been suggested in a code prepared under the authority of the American Engineering Standards Committee, and is reproduced below. (Fig. J.) Carrying out the idea of using amber to indicate caution, it should not be used for directional, no-parking or speed-limit signs.

COMMITTEE RECOMMENDATIONS

If lettering or diagrams are used to indicate the reason for caution, they should be in black on the amber background and should conform with the "Code of Colors and Forms for Traffic Signals" of the American Engineering Standards Committee.

For directional, speed-limit and parking signs, a white background with black letters is recommended.

Endorsements of the Foregoing Report

Prior to the publication of this report, two members of the committee which drafted it attended a conference at Atlantic City (April 22-23, 1927) of the New Jersey Commission on Uniform Traffic Rules and Regulations. At this conference, the report was read and each conclusion arrived at by the Joint Committee was explained. This was followed by a vote on each point, the result of which was the tentative approval by the New Jersey Commission of every principle laid down by the Joint Committee.

Subsequently, there was held in Westchester County, N. Y., a meeting of chiefs of police

representing various municipalities in that county, at which an endorsement of the report was likewise voted.

Personnel of Joint Committee

The Joint Committee of the New York State Conference of Mayors and Other Municipal Officials and the Empire State Gas and Electric Association, responsible for the foregoing report, consisted of:

Harry R. Hayes, City Engineer, Utica, N. Y.
William D. Cameron, Commissioner of Public Safety, Yonkers, N. Y.
W. Graham Cole, Safety Engineer, Metropolitan Life Insurance Company, New York.
S. G. Rhodes, New York Edison Co., New York.
A. G. Smith, Buffalo General Electric Co., Buffalo, N. Y.
William P. Capes, New York State Conference of Mayors and Other Municipal Officials, Albany, N. Y.
C. H. B. Chapin, Empire State Gas and Electric Association, Grand Central Terminal, New York.

Safety, Not Speed, Justifies Traffic Control at Most Intersections

A comment by A. N. Johnson, Dean, Engineering College, University of Maryland, from the foregoing report of the Joint Committee on Traffic Control Signal Systems.

SOME recent traffic data which have been prepared by the writer show traffic moving through several street intersections during a peak load for a number of intersections in Washington. The intersections observed included those free controlled, officer and automatic-light controlled.

In general, it may be said that up to a traffic rate of 1,000 vehicles per hour through any intersection under free control, the percentage of the vehicles which must come to a stop and thus are delayed in going through the intersection, is from 10 to 20 per cent.

At the intersection of two one-way streets under free control, traffic averaging at the rate of 1,000 vehicles per hour, the number delayed was 10 per cent.

At another intersection, with traffic varying from 1,200 to nearly 3,000 under officer control, the percentage of the vehicles delayed varied from 40 to 100. At this intersection, as the traffic increased beyond 2,000, the number delayed was 80 to 100 per cent of the total number of vehicles passing through the intersection.

Another intersection with automatic lights, with traffic varying from 500 to 1,300 per hour, the delays were 20 to 40 per cent. There was not much difference when the rate was 500 to 700 from when it was 800 to 1,200.

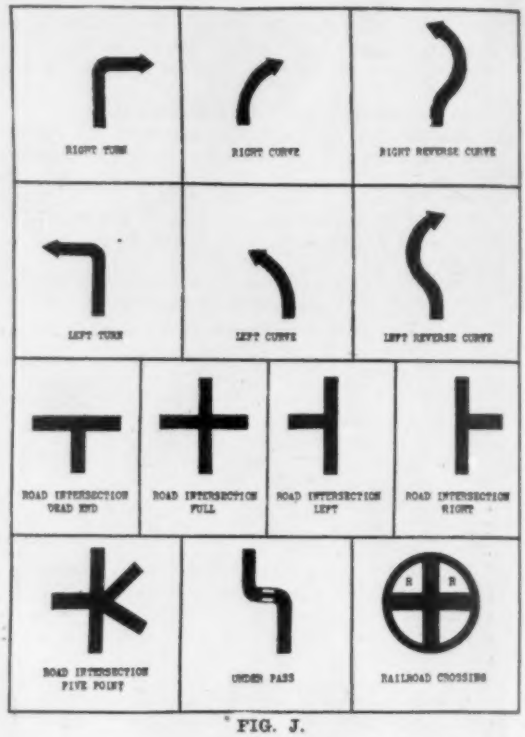


FIG. J.

At another intersection, with one-way traffic on one street, officer controlled, at a rate of 1,200 to 1,500 vehicles per hour the delays were 50 to 60 per cent, and as traffic dwindled to about 500 through the intersection, the percentage was about 12 to 15. It was noted the officer at this intersection was particularly active and kept traffic moving.

There are other data at hand, but these will perhaps be sufficient to bring out the point that until the traffic through any intersection exceeds the rate of 1,000 per hour, it seems that traffic through the intersection will move more readily without regulation from either officer or automatic signal. Therefore, if we are to have traffic regulation, particularly through intersections, with a moderate amount of traffic, the benefits to be secured are not because traffic will move more readily, but because of the added safety. From this standpoint alone, as accident statistics show, we are fully warranted in undertaking regulation of traffic, even though it may slow up under certain conditions.

Directories of Chiefs of Police

and of officials in charge of traffic regulation, if other than the chief of police, are a special feature of the 1927 MUNICIPAL INDEX.

The lists are divided into places of 10,000 population and over; places having 5,000 to 10,000 population; and places of less than 5,000 population.

(These directories begin on pages 287, 291, and 609, respectively, of THE MUNICIPAL INDEX FOR 1927.)

Prize-Winning Plans for Super-Highway

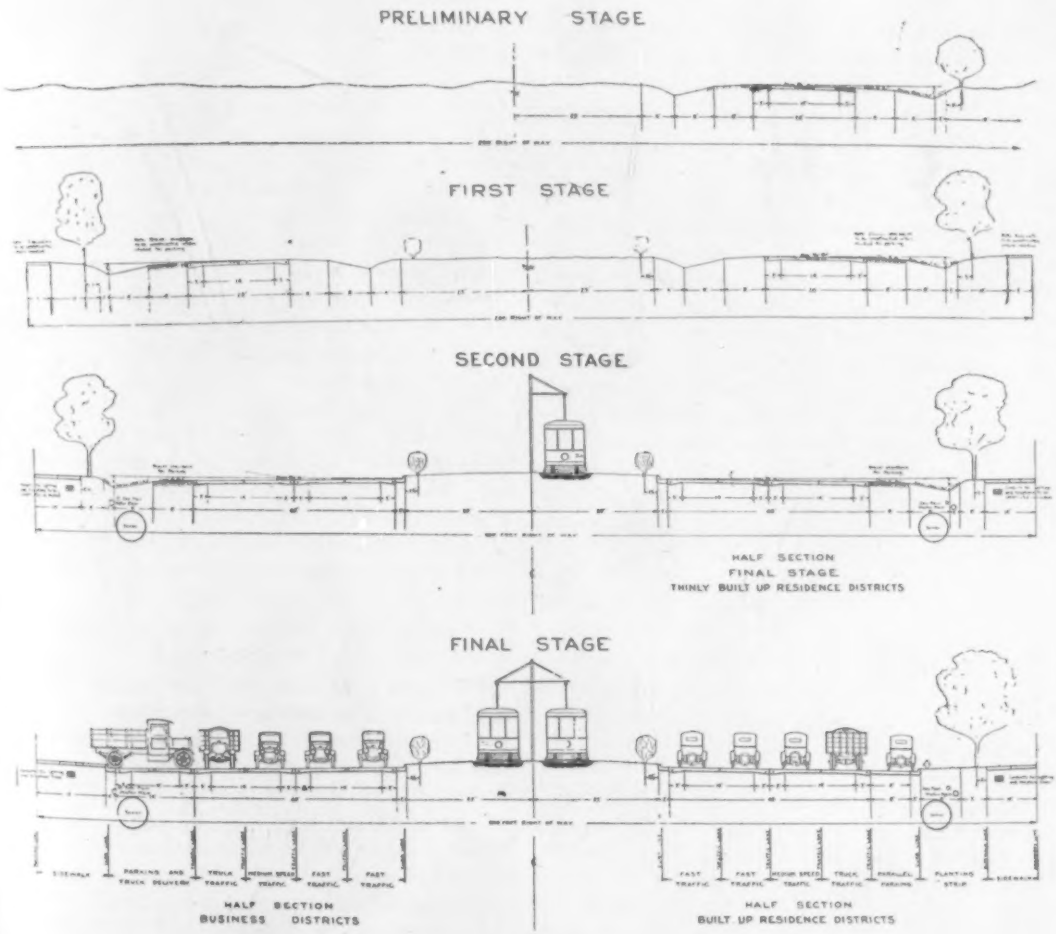
Progressive Stage Construction, Suggested by R. E. Toms, District Engineer, U. S. Bureau of Public Roads, Montgomery, Ala., Wins First Prize in Nation-wide Contest

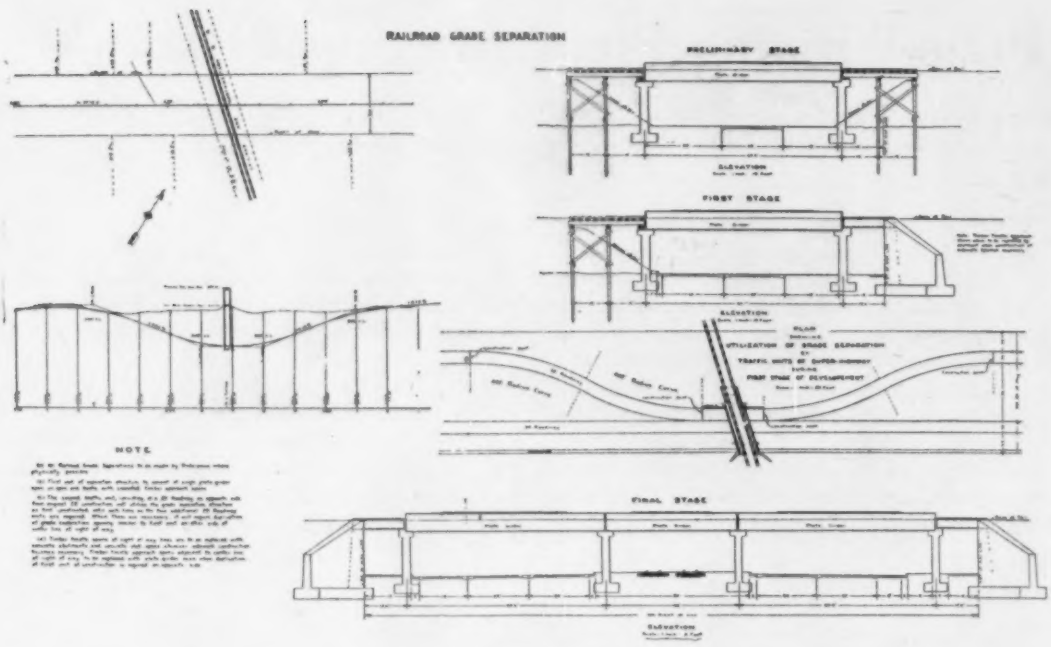
THE principal idea embodied in the plan by R. E. Toms, District Engineer, U. S. Bureau of Public Roads, Montgomery, Ala., for the super-highway fostered by the Metropolitan Super-Highway Association of Du Page, Cook, and Kane Counties, Chicago, Ill., is progressive construction. Mr. Toms was recently awarded the first prize of $1,000 in the nation-wide contest for the best plans for the construction of 200-foot-wide super-highways to serve Chicago's metropolitan area. His plan will be followed in the construction of the three proposed 200-foot-wide super-highways to connect Cook County with the Fox River Valley. The principle of progressive construction is also carried out with regard to highway grade separation and railroad grade separation.

Preliminary Stage

The construction of a single traffic unit of a 20-foot roadway on one side of the center of the right-of-way in a location where it would be utilized in succeeding stages, will constitute the preliminary stage of construction. This unit

(2)





has been located nearest to future sidewalk construction in preference to a location nearer the center of the right-of-way, in order to provide easier access from adjacent property.

First Stage

The second traffic unit, consisting of one 20-foot roadway, is indicated to be construction on the opposite side of the center line of the right-of-way from the original construction. This plan is believed to be better than to construct the second traffic unit of 20-foot roadway adjacent to the first unit constructed, for the reason that construction on the opposite side of the center line will tend to encourage property development equally on both sides of the right-of-way instead of on one side. Opinions differ in regard to the traffic-carrying capacities of two separated roadways as compared with the capacity of a roadway equal to the total width of the separated units. The plan submitted is sufficiently flexible, however, to permit either procedure.

The first stage of sidewalk construction, consisting of a 5-foot width of walk adjacent to the right-of-way line, is indicated for construction in this stage at such points as may be necessary.

Planting is to be undertaken in this stage along all sections of the improvement where the grading operations for work in successive stages will not damage the shrubs or trees. Low shrubbery is indicated for the outline of the center parkway, while shade trees would be used in the planting system adjacent to the sidewalks.

Second Stage

For balanced service, the second stage of improvement requires the addition of a 20-foot roadway on each side of the center line of the right-of-way adjacent to the construction done in the preceding stages. Shoulders of ample width are indicated for parking, and provision is made for gravel shoulders in front of all residences or developed sections of the highway in order that the full width of paving construction may always be available for traffic-carrying purposes. Provision is also made in this stage for the extension of the sidewalk width to 10 feet or the construction of a second unit of 5-foot walk in locations where this width is necessary.

Public utilities are to be added during this stage and extended as property development required.

Final Stage

The final stage of the improvement contemplates its location through a closely built-up residential section or a highly developed business district. In the closely built-up residential section, a curb and gutter has been added and the pavement extended in order to provide for parallel parking adjacent to the curb. In the highly developed business district, the sidewalk widths have been extended to 15 feet, a curb and gutter added, and the entire width between

curb and gutter and original roadway paved. This provides a paved width of 17½ feet which would be used for diagonal parking and for truck deliveries. This width will permit trucks to back to the curb for loading and unloading without obstructing the normal flow of traffic on the main portion of the highway.

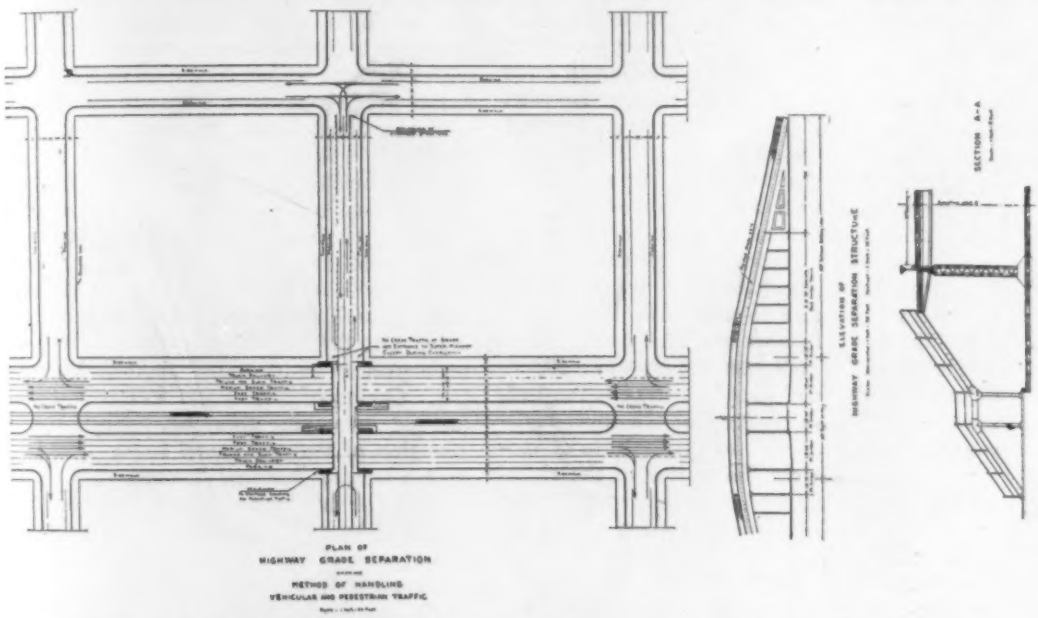
Highway grade separation will be accomplished in the final stage or any preceding stage at points where the volume of cross-traffic would endanger the traffic on the super-highway or materially reduce its carrying capacity because of the necessity of stopping traffic to permit cross-traffic.

Economic Construction

An outstanding feature of the plan submitted is its economic construction. Nothing need be constructed in advance of actual need, and nothing once constructed will be destroyed or fail to be utilized in the final improvement. There will be no large initial financial burden for the construction of a finished project. Construction can be undertaken as funds are available and traffic needs require. The principle of unit construction is employed throughout. Sidewalks are constructed in 5-foot units, roadways are constructed in 20-foot units. Gravel shoulders are used for parking, and give way to the construction of additional pavement and curb and gutter only when development justifies this procedure. Railroad grade separations are accomplished by unit construction in which the first unit is used throughout the preliminary and final stages of the super-highway development. At no stage in the proposed development will capital be tied up in what might be considered as unproductive investment. At no stage of its progress will the project be over-built.

Public Utilities

Provision is made for sewer, gas, water, and conduits for wiring and telephone service. These utilities are located so that during all stages of development openings for service connections and repairs can be made without tearing up any portion of the pavement originally constructed. This condition obtains up to the final stage of development in the business district, where, on account of the desirability and necessity for increased sidewalk width and space for parking and delivery service, it will be necessary to pave directly over the utilities. In this latter case, however, openings for service connections and repairs will cause inconvenience only to parking and truck delivery and will not cause any interference with the normal movement of traffic on the main body of the highway.



PLAN OF HIGHWAY GRADE SEPARATION AND METHOD OF HANDLING VEHICULAR AND PEDESTRIAN TRAFFIC

Highway Grade Separation

The highway grade separation is a detail in the general plan which is essential if the maximum value in traffic service is to be received from the investment in the construction of wide highways. The purpose of the super-highway is to provide unexcelled traffic service. This can be accomplished only by permitting the fewest possible obstacles to the free movement

of traffic over these wide highways. The highway grade separation plan submitted contemplates a gridiron development of approximately one city block on either side of, and perpendicular to, a highway grade separation structure. The method of handling traffic across this highway grade separation structure will be almost identical to the handling of traffic at grade in cities and intersections where no turns are permitted. Traffic desiring to cross the super-highway or to make a crossing at grade will use the overhead structure. It is a scheme which is unusually simple, practical, and flexible. Its first use will ordinarily be at intersections with section line roads. There ordinarily is some community development at these locations and it will be a comparatively simple matter to develop the gridiron system which will be necessary in order to separate the highway grades. The width of the highway grade separation structure will vary according to the volume of cross-traffic which will have to be accommodated. The width, however, should not occupy more than 30 to 40 per cent of the pavement width of the cross-street, so as to permit street-level access to stores and houses on the cross-street. For ordinary crossing, a 20-foot width of roadway will probably be all that will be necessary. In this connection, provision will also be made for cantilever sidewalks and stairs to and from the ground sidewalk, so that pedestrian traffic as well as vehicular traffic will use the straight super-highway overhead. When this stage is reached, there would be no crossing of the super-highway at grade, and the two inside lanes of motor traffic nearest the center line of the right-of-way can be utilized for high-speed traffic in which the mechanical perfection of the vehicle and the skill of the driver will regulate the speed. The third lane will be used for medium-speed traffic for automobiles and trucks, the fourth lane for low truck traffic. Traffic desiring to turn to the right off the super-highway will first maneuver into the medium-speed traffic lane, thence to the slow-truck lane or, if the slow truck traffic permits, will cross the truck lane from the medium-speed traffic lane in turning to the right. The safety feature of such a scheme cannot be over-emphasized. The location of grade separation structures will be determined by the amount of cross-traffic. When property adjacent to the super-highway reaches a stage of development extending for several blocks on either side, it may be necessary to construct highway grade separations every sixteen, eight, or four blocks. The scheme is sufficiently flexible so that structures of this character can be used every second block if required in handling the traffic.

Railroad Grade Separations

The principle of unit construction is followed throughout the construction of railroad grade separation. Economy in first cost is also the dominating feature, as it will be difficult to enlist the cooperation of the railroad companies in the construction of separations of much greater width than will be immediately necessary to provide for the highway traffic. The first unit of the grade-crossing structure will provide for a single plate girder span of approximately 65 feet on concrete open-end bents with creosoted timber trestle approaches. The initial grade-separation structure of this plan will accommodate two 20-foot roadways and eventually will be used as a unit in the final grade separation structure when the entire 200-foot right-of-way is developed to its final stage. Traffic utilization of this structure by the second 20-foot unit of construction located on the opposite side of the right-of-way of the super-highway will be accomplished by introducing a jog into the alignment in the vicinity of the underpass so as to utilize the underpass opening. Curves of 400 to 500 feet radii could be utilized in making this jog. When the construction of two additional traffic units of 20-foot roadway becomes necessary, a duplication of the first unit of railroad grade separation will be required on the other side of the center line of the right-of-way. When this is accomplished, the pavement forming the two curves of the jog will have to be removed.

Conclusion

The plan submitted is intensely practical, economically sound, and highly flexible. The principle of progressive stage construction should be particularly appealing to communities which have not at hand sufficient funds to undertake in one operation the construction of a finished improvement on a scale to which the modern super-highway should be built.

We should not forget that it is not only important that we make city government honest and efficient but that it is equally important that we make it interesting and instructive to the people.

—A. R. HATTON.

Asphalt Maintenance Without Recourse to Large Plants

By Walter E. Rosengarten
Traffic Engineer, The Asphalt Association

A BEAUTIFUL, newly completed asphalt surface over which one can travel by automobile with ease and comfort gives a sense of satisfaction and pleasure to engineer, contractor and motorist. To observe it cut and mutilated, even for necessary work on underground structures, is disheartening. It is true that by proper methods and materials it can be restored to its original condition, but too frequently it means a spring-breaking bump or depression which exists as an obstruction to traffic for weeks and months before the backfilling has settled and an opportunity is presented for resurfacing.

It is estimated that in this country there are approximately 650,000,000 square yards of mixed types of asphaltic surfaces. If the maintenance and patching area is one per cent per year, it means that some 6,500,000 square yards are laid annually in small and scattered patches, numbering probably a million. While it may seem a trivial matter to discuss the patching in a small opening, it is indeed a big proposition in the aggregate, and if it can be properly and expeditiously accomplished, it means comfort and service to the traveling public.

Regulation of Openings

It is highly desirable that openings in pavements be kept at a minimum. A usual method of reducing the number of openings in a new pavement is to notify the abutting property owners personally or post notices along the street prior to beginning work, requesting that all repairs to underground structures be taken care of immediately, as the pavement is about to be laid, and that no opening will be allowed thereafter for a period of one year. While it is impossible to enforce this regulation strictly, it will assist materially in the elimination of unnecessary openings.

There are many openings which cannot be held off until the time of repaving, such as repairs to faulty piping and extension to systems due to the developing of the community. These necessary openings should be regulated, and a method which is giving good results is for the city to charge the owner or public utility for the cost of replacement at a fixed amount per square yard per opening for the various types of pavements. The public utility company or owner is then allowed to make the opening, and the city forces are called in for backfilling and repairing. Thus the city has control and responsibility. Another method is for the party making the opening to be allowed to replace the fill and paving upon deposit of double the estimated cost. This excess is retained for six months. The extra deposit insures care in tamping the backing and paving. Before replacing the paving, it is desirable for the base to be cut back with a vertical edge sufficiently to leave an undisturbed shoulder of the old subgrade of at least four to six inches all around and the asphalt surface cut back two or three inches farther.

In relaying the paving it should be made as near like the surrounding pavement as possible. If this is done, there is less likelihood of the formation of a bad place, and also the existence of the patch will be less noticeable.

For the larger cities which have their own asphalt plants or which have sufficient work to keep a contractor with a hot mix plant in continuous operation, the question of repairs is not so difficult. For the small city, however, where

"Trench Fever"

In the borough of Manhattan, New York, in 1925, there were 78,532 square yards of openings cut in asphalt pavements for work on underground structures, or a little over one per cent of the total area, and it is typical of the condition throughout the country. An English writer has called this "trench fever." It is indeed a widespread and expensive disease, but there is little wonder when it is recalled that beneath our pavements is a network of water, gas, electric, telephone, sewage, and steam lines. Frequently, the number of openings is increased on account of indefinite mapping of these structures. An endeavor should be made, wherever possible, to so lay out underground pipe lines and services as to eliminate the necessity of openings in the paved area.

NOTICE POSTED PRIOR TO REPAVING A SECTION OF FIFTH AVENUE, NEW YORK CITY

This notice is designed to reduce the number of openings in the new pavement

a hot mix plant is not available, the question of properly repairing openings is sometimes considered a more difficult problem. This should not be the case today when there are available small repair plants for preparing hot mixtures, as well as asphaltic materials which can be handled cold.

The problem which confronts the engineer or official in charge of maintenance of asphalt surfaces of the hot mix type is the fact that patches and repairs are required at odd times and must be laid in small areas. The quantity of material required at any one time does not justify setting up and starting in operation a full-size hot mix plant. Repairs on a sheet asphalt or an asphaltic concrete pavement should preferably be made with a hot mix or a similar paving and a slightly harder asphalt than that used in the original construction. There is no need to leave an opening unpaved for any period, as a temporary patch can be readily placed. These may be of penetration type or preferably a mixed type. Cold asphaltic binders may be used for this purpose.

Cold Mix Materials

The asphalt binders which can be mixed cold at ordinary temperatures may be classed as cutback asphalt and emulsified asphalt. Ready-prepared asphalt mixtures which can be laid cold are also on the market.

The cutback asphalts are made from standard grades of paving asphalts which have been softened by combining them with a light petroleum product such as naptha or gasoline. These are workable at ordinary temperatures. About two-thirds of a gallon is mixed with a cubic foot of stone chips to form a paving material. It may be kept in stock piles for long periods and when needed can be readily spread out on the road surface in a thin layer. Initial stability is obtained through the mechanical interlocking of the aggregates when rolled. The light, volatile material evaporates rapidly, leaving the hard, sticky asphalt to bind the mix firmly in place and thus insure the necessary stability for modern traffic. If desired, these materials can be easily prepared on the job, the mixing being accomplished either by hand or by a small portable hydraulic cement mixer. A satisfactory method is to stock the materials at department yards and provide a covered place where mixing can be done on rainy days. It is preferable to allow the material to stand for a short time after mixing, to stiffen somewhat so that it will hold its place when first spread on the road. A material suitable for this work is covered by tentative specifications which have been carefully prepared by the Asphalt Association.

Emulsified Asphalts

The second class of asphaltic materials for cold working is known as emulsified asphalts. These are prepared by treating ordinary paving asphalts with a saponifying agent so that it will mix with water. These emulsions contain about

COLD PATCH REPAIR WORK, SHOWING THE COLD MIXING OF EMULSIFIED ASPHALT AND STONE CHIPS

two-thirds asphalt and one-third water. They are handled in a manner similar to the cutback asphalts. It is not necessary that the aggregate be dry when mixed with emulsified asphalts. About one gallon is used for each cubic foot of aggregate. The latter can be made up of two-thirds of ¾-inch stone and one-third clean ¾-inch screenings. The small inclined axis type of mixer gives better results and less trouble from balling than the horizontal axis mixing machine. Care must be used not to overmix when this material is used, as the water and asphalt may separate. Until recently, freezing would also damage emulsified asphalts, shipped in carload lots. They may be stored in stock piles and used as needed. Old asphalt pavement is sometimes re-used for temporary patching. It is broken into small pieces of from two- to three-inch sizes and heated in kettles with about five per cent of water. It is allowed to steam for half to three-quarters of an hour, and the plastic mass is then spread in the opening and compacted. This practice is used in several of the larger cities for winter patching. Some places pass the old material through an asphalt plant and add fresh asphalt or sand as needed to improve it.

It should be considered that these cold mix-

REPAIRING UNDERGROUND PIPES, CONDUITS AND WIRES BEFORE RESURFACING FIFTH AVENUE, NEW YORK, AT 46TH STREET

causing their separation. A material is now on the market, however, which overcomes these disadvantages and will withstand freezing weather without injury. This material has been carried through the winter without impairment. The emulsified asphalts are excellent for cold patching work, and while it is recommended that a hole be cut with vertical edges to more securely hold the new material in place, many successful patches have been made by lightly painting the surface of a depression or disintegrated spots with emulsified asphalt and filling with a mixture of stone and emulsified asphalt which is spread to a thin edge.

Ready-mixed materials are available which make unnecessary the use of mixing plants and machinery other than shovels, rakes and tampers or rollers. These materials are generally mixed at quarries or central mixing plants and tures and reheated mixtures make very satisfactory temporary patches. When sufficient patching of this character has been carried out, it is desirable to arrange for a hot mix plant to come in and replace the temporary patches. This requires additional cost, but it is compensated for by the fact that no period of obstruction to traffic need exist. The more lasting hot patch of carefully graded aggregate will blend more readily with the surrounding pavement, making it practically unnoticeable after traffic has passed over it for a short period. It is possible by the use of suitable equipment to make hot mix patches for small areas.

Since it is desirable to replace an opening as promptly as possible, some cities have been successfully cutting down the period of obstruction to traffic by constructing the base of asphaltic concrete in place of portland cement

SURFACE HEATER IN USE FOR RESURFACING SHEET ASPHALT PAVEMENT

concrete. It is laid in courses of not over four inches, each thoroughly tamped. On this the surface is immediately placed by the same gang laying the base, using the same equipment.

Equipment for Mixing

Contrary to the general opinion, excellent patching of the mixed asphaltic pavement can be accomplished with inexpensive equipment. The materials can be mixed by hand, and little more than a mixing board, shovels, rakes, and tampers are required. When a few square yards are patched at infrequent intervals as in small towns where but a few streets are paved, creditable work can be done with this simple outfit. It is, of course, desirable and economical to have additional equipment if any appreciable area be maintained. A variety of equipment is on the market which will suit almost any needs. For heating the asphalt there are a number of small portable kettles burning wood or oil. Aggregates may be heated over pipes containing fire, but there are small portable heaters for this purpose. A compact portable maintenance outfit which is being used extensively includes a body with compartments for sand, stone, and asphalt, a heating furnace, and a hand mixing pan. With this, a gang of four men can patch about eighty square yards per day. For cold-weather work a special wheelbarrow equipped with a gasoline torch in which hot materials can be mixed and transported, will be of assistance. For mixing cold patch and emulsified materials, a small concrete mixer may be used. For hot mixtures a compact, well-equipped, portable unit with open-top, continuous blade mixer, rotary sand drum heated by kerosene burners, air-compressor, etc., operated by gasoline motors, can be purchased for about $5,000. It can be operated by a mechanic and one laborer, who can turn out about 125 square yards per day. If the area to be maintained is large, a small-size, completely equipped portable asphalt plant will undoubtedly be desirable. Several plants of this character having outputs of 250 to 800 yards per day are on the market and cost from $7,000 to $12,000. Generally they are mounted on a rubber-tired trailer for easy transport. Heat is furnished by fuel oil burners and power by a gasoline motor.

A handy piece of equipment for maintenance work is a surface heater. This consists of a hood which confines and directs hot gases upon the pavement. After a few minutes the old surface is sufficiently soft so that it may be scraped to a depth of a quarter of an inch and new material applied. In this way humps and depressions may be leveled and disintegrated places renewed with the use of a very small amount of new material. The surface heater may be obtained in several sizes, the smaller machines mounted on two wheels and hand-propelled, while the larger ones are on a truck or tractor chassis.

ACKNOWLEDGMENT.—From a paper read before the Fifth Annual Asphalt Paving Congress, Washington, D. C.

A Few Cents Well Spent

It is well to reflect that a few cents spent on maintenance and repairs are not wasted, as the expenditure is certain to prolong the life of the pavement and thus return to the community several-fold. The work will also give a smoother riding pavement, which will thus serve its purpose to better advantage. If we consider a sheet asphalt surface costing $1.50 per square yard to have a life of twenty years, the cost for principal and interest to be paid off during its life is 12 cents per square yard per year. The average cost of maintenance for such a pavement may be taken at about 2 cents per square yard, making a total annual cost of 14 cents, or $2.80 for the 20-year period. By doubling the maintenance, it is quite possible to extend the life of the pavement 50 per cent, or to 30 years. The additional maintenance cost would be 60 cents per square yard. As against this, a renewal of the pavement at the end of the 20 years would cost 12 cents per square yard per year, or $1.20 for the 10 years. Thus, the additional maintenance would effect a saving of 60 cents per square yard. Adequate maintenance cannot be considered merely as upkeep. It builds additional life into the pavement.

The Water-Supply and the City Limits

By Louis Brownlow

From Mr. Brownlow's syndicated series of letters on municipal problems—
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WHAT with the automobile and good roads, the cities and towns are spilling over their boundaries and all over the map, and nearly everywhere that leads to much conversation—some of it acrimoniously unpleasant—about water outside the city limits. It makes no difference in this respect whether the water-works are owned and operated by the municipality or by a private water company. Conditions change with the political boundaries. If a private company is paid $45 a year a hydrant for fire protection inside the city, who is to pay across the line? If the city owns and operates the plant, shall it charge the suburbanites a special fee for fire protection? And shall it extend its mains to serve people who sometimes have moved outside to avoid city taxes?

Because these questions are almost universal in incidence, I think peculiar interest attaches to the Ohio plan for the cooperation of various political units for water-works purposes, a plan now being first put into operation in the region about Youngstown, comprising towns and cities of Mahoning and Trumbull Counties.

This plan is the creation of a special governmental body for the sole purpose of finding and maintaining a water-supply system. It is similar in this respect to the Port Authority which controls the port of New York and is the joint creation by treaty of the states of New York and New Jersey. It had its local origin in the Conservancy Districts that were created twenty years ago to finance and construct the flood control works of the Miami River valley after the disastrous Dayton flood.

The Ohio plan gets around all local governmental quarrels and prejudices by the provision of the act of legislature that permits the courts, on petition of the cities and towns, to create special sanitary districts. These may involve either water or sewage works, or both, according to the Sanitary Act of Ohio of 1919.

Although on the statute books for eight years, only Youngstown and Niles, the Mahoning-Trumbull County district, has taken advantage of it. The district has been created and the courts have named commissioners, one from each county, who serve for a dollar a year. An arbitrary tax of three-tenths of a mill is assessed for the preliminary expense of survey, and so forth.

The law also provides for a board of appraisal, and this board will appraise the benefits to be found to the several cities and towns affected, which benefits will equal in the total the cost of the improvement. Unless they do, the whole thing fails. Appeals from all these assessments are to be had to a court consisting of the judges of the courts of common pleas of the counties affected.

The assessments in incorporated towns and cities will be levied against the corporate cities. In rural districts the benefits where found may in the absence of incorporation be assessed directly against the property benefited.

What will happen will be this:

Suppose the entire project will cost $6,000,000. The Sanitary District will issue the bonds and build the works. The courts will assess the benefits. Suppose, and this is of course only a guess, that 60 per cent be assessed against Youngstown. That would mean that Youngstown would pay $3,600,000 for its new, pure, cool water-supply. It would have twenty-five years in which to pay the principal, keeping up the interest, which would, because of the governmental character of the bonds, be quite low. Most householders will save more than their share of that by the saving in ice—think what it must mean to have water coming out of the faucet all summer at 100 degrees, so that you have to put ice in your bath tub!

But whatever the cost, the point is that the Ohio Legislature by the Sanitary Act has made it possible for cities and towns and rural territories adjacent to cooperate in this matter of water-works and yet enjoy the low costs inherent in the governmental financing.

In the absence of such laws, or in the presence of limits of bond issues that do not take into account the remunerative features of water plants, some cities are forced to turn to private ownership as an expedient when it is a form only.

Thus Decatur, Ill., finances a water plant by a private company, the stockholders of which are citizens who will be repaid from the water revenues, and when they are so repaid, the city will own the plant.

Thus, Bloomington, Ill., and its neighbor, Normal, consider a similar private company to meet a similar condition. Public-spirited citizens of course are willing to assume the risk involved, and the cities eventually will own their plants, but they will have to pay much higher interest rates because they could not, under the limitations of state law and the ab-

sence of machinery for the cooperation of different municipalities, avail themselves of the cheaper prices of money when borrowed for public uses by a governmental agency.

I admire the Decatur and Bloomington spirit of surmounting difficulties, of course, but the Ohio plan shows the way that the legislatures may relieve the cities of many difficulties by making regional compacts for community purposes possible and legal.

Who will pay the bill in Youngstown? That depends. The assessment will be made against the city, and the city will be free to pay it out of the water-rates it will continue to collect, or Youngstown may pay part of it from water-rates and part from taxes, or all of it from taxes; or, during the twenty-five years, it may use all three of these methods at different times.

In other words, the Ohio plan makes it possible for the cities to get together to do those things that they cannot do separately, and leave them perfectly free to do with their own as they like.

Cross-Connections and Typhoid

DURING 1926, according to the monthly *Bulletin* of the Board of Health of Fall River, Mass., a few cases of typhoid fever occurred in Tiverton, R. I., where the typhoid incidence had previously been low. At first there appeared to be little apparent connection between these cases, except the fact that they were employed at the same place. A check-up with the Massachusetts State Department of Health, however, revealed other cases in that state among persons who were employed in this factory. In all, one death and fourteen cases were finally traced to this plant.

Curiously enough, all the cases were confined to persons employed in one particular section of the plant. Furthermore, the cases were distributed at irregular intervals over a period of about eight months. Apparently there was some infective agent which was local in character and active only occasionally.

From a certain similarity to an epidemic which occurred years ago in Lawrence, Mass., it was suspected that the cause might be a cross-connection between the drinking-water supply and a supply used for industrial purposes. The drinking water obtained from a deep well was of safe quality and was piped to bubbling fountains throughout the plant. The industrial supply was subject to pollution by sewage from the mill. The two supplies were entirely separated except for a cross-connection between the storage tanks to permit either to be washed out with water from the other.

There is reason to believe that the infection followed the cleaning of the drinking-water tank with polluted water from the industrial supply. Why the infection was not spread throughout the mill is not easy to explain. The bubbling fountains which would naturally be used by the persons who contracted typhoid, however, were located relatively close to the tank and it is possible that a slug of polluted water may have flowed into the pipe and was drawn off by the first person who drank at these particular bubblers.

During the last twenty-five years more than forty epidemics have been recorded as caused by contamination of a drinking-water supply through cross-connections with a polluted industrial supply. Most of these cross-connections have gates or self-acting check-valves which were supposed to keep the two supplies entirely separate. In some cases the gates were left open by mistake. In other cases, the automatic valves failed to close. In still others, the gate or valve failed to set properly and the bad water leaked through.

The recorded toll of these accidental contaminations is about 3,000 cases of typhoid and many thousand cases of severe intestinal disturbances. There may have been hundreds of other cases where the cross-connections which caused the trouble were not recognized or the epidemic was not reported.

The Conference of State Sanitary Engineers and the American Water Works Association have both recommended that such connections be abolished. In a number of states cross-connections are prohibited and many municipalities forbid them in industrial plants to which they supply water.

The fifteenth case of typhoid fever due to the Tiverton source was that of a resident of Fall River and was reported January 8, 1927. Of the fifteen cases, eight were residents of Fall River, one of Swansea, Mass., and six of Tiverton, R. I. The patient who died was a resident of Fall River and the death occurred in that city.

When investigation of cases reported in November and December disclosed that all the cases reported in the city were those of employees of a mill in Tiverton, R. I., and that over a period of seven months cases had occurred at intervals, it was thought that a carrier was responsible for the transmission of the disease. As the plant was not only out of the city, but also out of the state, the cooperation of the State Board of Health of Rhode Island, the Health Officer of Tiverton, and the Massachusets State Department of Health was sought by the Health Commissioner of Fall River to discover the source of infection.

With all departments cooperating, a careful investigation was made both jointly and separately and the cross-connection referred to was discovered by the bacteriologist of the Board of Health of Fall River. This cross-connection was broken by direction of the mill management, and the supplies will be kept separate in the future. No cases of typhoid fever have been reported since the cross-connection was abolished.

There is a common impression that a real democracy can be established by merely giving voting rights to everybody and letting things take their course. As well might we try to make the world righteous by putting a copy of the Ten Commandments in everyone's hand and calling the job complete.

—WILLIAM B. MUNRO.

Recent Developments in Road Maintenance Methods

By A. H. Hinkle

Superintendent of Maintenance, Indiana State Highway Commission, Indianapolis, Ind.

EACH year we find new developments in the methods of repairing and maintaining highways. Some of these methods prove to be valuable and remain as standard practice, while others prove to be useless and are displaced by still other new processes. It is only by experiment, which may extend over a period of years, that the value of any new process can be fully proved. The length of time required for a field test to fully develop the relative value of any new type of road surface or method of construction is the one thing that makes progress along this line slow. Also, it is this same slow process of proof that makes a field for promoters of new types and methods which frequently are worthless except to extract money from the taxpayers' pocketbooks for the benefit of the promoters.

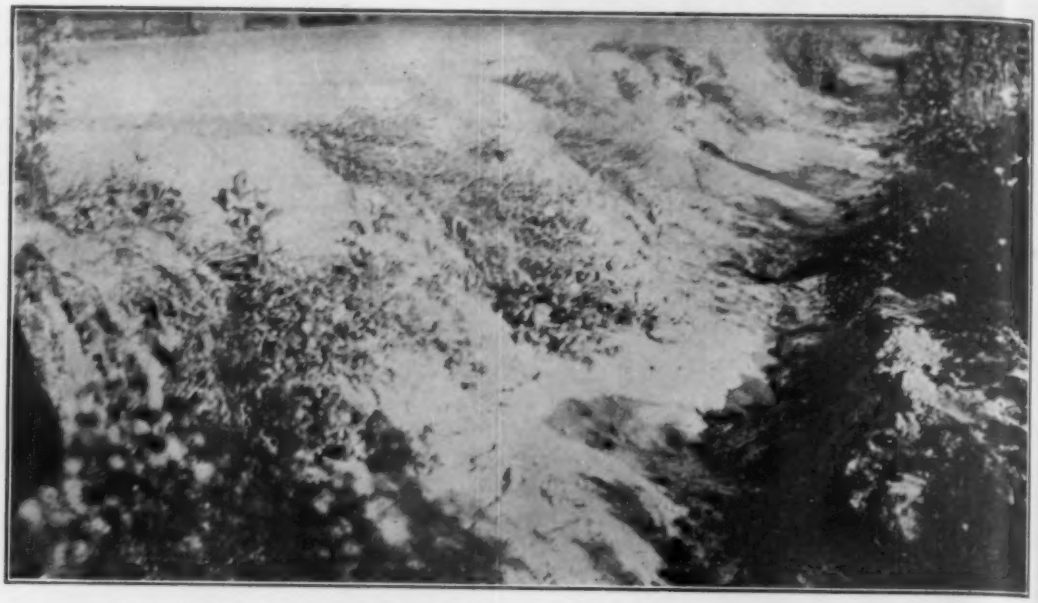
Any of the new experiments that are enumerated here, therefore, are not given as certainties of better methods, but they bear such marks of possible value that I deem them worthy of mention for the interest of those who are dealing with road maintenance problems.

1. Protecting Slopes Against Erosion by Temporary Use of Straw Followed by Growing Vines

A high fill for the approach to a bridge was made of sandy loam. Because of the nature of the soil, erosion was excessive. On half a dozen occasions, during the heavy rains last fall, gullies were washed into the fill banks as far as the wheel tracks. To eliminate the expensive repairs, it was decided to protect the slopes against erosion. A layer of straw about 9 inches deep was spread over the surface. This was held in place by old wire fence which a farmer had discarded, laid flat on the surface. A few stakes were driven into the ground to hold the fence in place. Small holes were opened in the spread of straw, and three different kinds of vines were planted. Honeysuckle was planted 6 feet apart, fox grape was planted 100 feet apart, and Vincia vine was planted 3 feet apart. It is expected that the vines will spread a dense mass over the entire ground surface by the time the straw is gone, and thus eliminate

FILL MADE OF SANDY SOIL COVERED WITH STRAW HELD IN PLACE BY DISCARDED FENCE WIRE STAKED TO THE GROUND

Honeysuckle, Vincia vine and fox grape have been planted through small openings in the straw. It is hoped that these will cover the soil with a heavy growth in a few years and thereby prevent future erosion



SMALL GULLIES ERODED IN NEW SHOULDERS, WHICH ARE FILLED WITH SOD TAKEN FROM ALONG THE FENCE

future erosion. Grass seed was sowed the following spring in order that a sod may be produced on all bare places until the vines develop.

For ordinary soils a June grass sod is very satisfactory. The growing of a sod may be speeded up by filling little gullies in the fill slopes with sod secured along the line of the fence.

2. Spring Treatment of Shoulders and Ditch Slopes, and Standard Shoulder Maintenance

Roadside mowing on all improved roads is now established practice. Débris, such as pieces of wood, bones, wire frequently left by telephone companies and every form of junk and trash, finds a landing place along the roadside. Stakes and stones are raised each winter by frost action. All these, together with perhaps stiff stubble from the preceding year, make roadside mowing expensive, unless special care in cleaning the roadside is taken each spring just preceding the starting of the growth. Not only must the loose pieces of foreign material be removed, but also some means must be taken to smooth the ground disturbed by frost-action and wheels. Hidden objects, stakes, and stiff stubbles can best be eliminated by dragging the shoulder and ditch slopes with some form of drag that will adjust itself to the curved surface. Especially designed drags and even heavy log chains may be used for this purpose. Some of our superintendents have dragged rolls of discarded wire fence over the surface. For

SPREADING STONE ON SHOULDER ALONG EDGE OF PAVEMENT WITH SPREADER BOX

proper economic maintenance in the early spring, the ground surface must be leveled by dragging after the frost has left the ground. The necessity of systematically mowing the roadside is an argument for making the roadbed slopes as flat as four to one. If they are made so steep as to require hand mowing, a further expense is imposed by this additional work in keeping the roadside in good condition.

The rut that is formed by traffic along the edge of the pavement should be filled from time to time with gravel or stone. This last year we have used for this purpose a spreader box whereby the metal is spread to the proper width and thickness as the truck is driven on the pavement.

3. Repairing Concrete Pavements with Quick-Hardening Concrete

During the last few years an innovation has taken place in the repair of concrete roads with quick-hardening concrete. The first satisfactory method of doing this was with the use of Lumnite cement. The second improvement developed about two years ago was in the use of a special mix of ordinary portland cement, thus making a concrete that could be opened to traffic after two days' placement. This special mix depended for its quick-hardening properties on six factors: 1, rich mix; 2, coarse sand and well-graded aggregate; 3, a dry mix; 4, longer time in mixing; 5, high atmospheric temperature; 6, use of calcium chloride.

A third improvement in making quick-hardening concrete is the use of a quick-hardening portland cement which is now put on the market. It has such quick-hardening properties that a concrete pavement of the standard mix can be opened to traffic in seven to ten days. This is ordinary portland cement made by special refinement processes. By using this cement in the special formula described in the method above, a concrete patch can be made during hot weather that can be opened to traffic one day after the placement.

4. Use of Penetration Macadam as a Base for Rock Asphalt and Other Bituminous Concrete Tops

This last year we built two experimental sections of ½-inch rock asphalt on a penetration macadam base. The base was built according to our standard specifications for bituminous macadam top course, except that less bituminous material was used. One and one-fourth gallons was used in the first coat, and ¼-gallon in the second, and the third coat was omitted entirely. Covering material was used only to the extent of about 1 cubic yard to 200 square yards of surface. This left a surface with large voids which provided anchorage for the rock asphalt, which was spread at the rate of 56 pounds per square yard, or enough to make a compacted thickness of about ½-inch. It is now believed that the minimum amount of rock asphalt in such construction should be 75 pounds per square yard. This type might be used as a base for sheet asphalt and other forms of bituminous concrete. Every indication points to this type of base as being an improvement over waterbound macadam as a base for rock asphalt, sheet asphalt, and various forms of bituminous concrete surfacing.

A PENETRATION BASE ON WHICH ROCK ASPHALT TOP IS PLACED

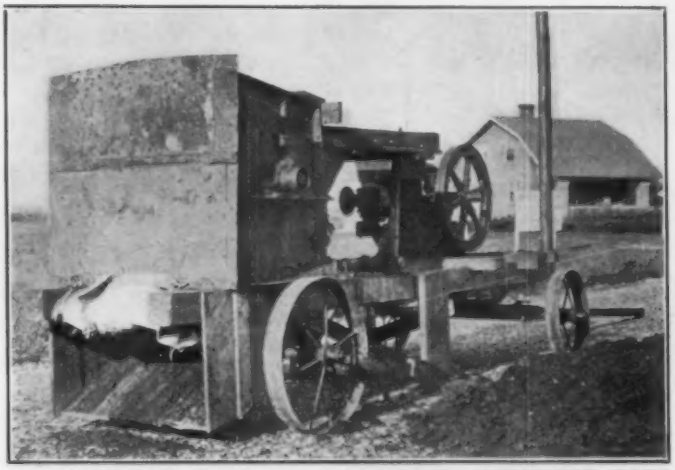
5. Method of Smoothing Rock Asphalt Surface by Use of Long Steel Base Drag or Planer

A refinement in securing a smooth rock asphalt was developed by dragging the surface with a heavy metal drag. After the rock asphalt was laid, raked, and gone over once with the roller, it was leveled by pulling this heavy metal planer or drag over the surface in practically the same manner as a gravel road is dragged. This planer shaved off the high places and deposited the rock asphalt thus cut off into low places. Where there was not sufficient loose material secured by the cutting, additional asphalt was dropped in front of the drag blade from time to time. The dragging and rolling were continued until a perfectly smooth surface was secured.

HALF-INCH ROCK ASPHALT ON PENETRATION MACADAM BASE
The uncoated base is shown in the distance

We had experienced some trouble in securing a smooth-riding road with this type of surface, but this process of smoothing the road, which costs very little, seems to solve this particular problem.

6. Pulverizing Rock Asphalt and Other Bituminous Mixtures with a Threshing Machine



OLD THRESHING MACHINE EQUIPPED TO PULVERIZE ROCK ASPHALT IN COLD WEATHER

The cold weather late in the season made it almost impossible to properly rake the rock asphalt, because of its lumpy condition. One of our contractors conceived the idea of pulverizing the rock asphalt by passing it through an old threshing machine. The cylinder and concave of this machine were properly mounted in a box about 5 feet high, and a small engine was attached thereto for power. The asphalt was shoveled into the machine much in the same manner as grain is handled. This broke up the hard lumps into a fine powder, after which the rock could be readily raked, even easier than it could be raked during warm weather.

Amiesite was pulverized in the same manner. This pulverizing can be done only when the material is brittle on account of low temperature.

7. Bituminous Concrete Top for Traffic-bound Gravel and Stone Roads

This form of top, some times called a Retread top, might be briefly described as an intermediate form of top between the surface-treated gravel and a penetration top. From 2 to 4 inches of stone or crushed gravel, ranging in size from 1¼ to 2½ inches, is uniformly spread over the old surface by the use of road graders and drags. A first coat of bituminous material of about ½- to ¾-gallon per square yard of tar, TM, TH or liquid asphalt AC, is applied to the coarse stone. As the bituminous material stiffens, the stone is leveled with graders and long-

based planers, and finally rolled when the surface is sufficiently hardened to bear the weight of the roller and be firmly compacted. This process may take from two to six days, depending on the grade of bituminous material used and on the temperature. This leaves the surface looking very much like a bituminous macadam surface after the first application of bitumen. The finishing process consists of two or more additional coats of tar TH or liquid asphalt, of about ¼- to ⅓-gallon each. Each coat after the first may be covered with ¾-inch aggregate, dragged and rolled. After the first application of bituminous material, spots which show signs of breaking and which also show clean stone, are given a small additional amount of bituminous material. Such spots may develop where there is an extra depth of loose stone and where the road surface has been disturbed by traffic.

ACKNOWLEDGMENT.—From a paper read before the Road School at Purdue University, January, 1927.

Another of California's Municipal Swimming Pools

THE MUNICIPAL PLUNGE AT ANAHEIM, CALIF.

SINCE the publication in our May issue of an article on "Some of California's Municipal Swimming Pools," by George W. Braden, the following description of the municipal plunge at Anaheim, Calif., has reached us.

The pool at Anaheim is 50 by 150 feet, running in depth from 3 feet to 9 feet, and holds 362,000 gallons. It is equipped with a Wallace & Tiernan chlorinator, a filtration system, two heaters, one for the plunge and one for the showers and laundry, and a water softener which supplies all showers, heaters, and laundry. Warren L. Ashleigh, Superintendent of Parks and Recreation, is in charge of the pool.

County Libraries Greatly Needed in Rural Sections

THAT there are at the present time in the United States about 47,000,000 rural folk without public library service—constituting ninety-three per cent of the entire number of persons without this service throughout the country—is a situation revealed by a recent survey by the Committee on Library Extension of the American Library Association, summarized in its pamphlet "Equalizing Library Opportunities."

Decrying this condition as contrary to the American principle of equal opportunity to all, the Committee points to the county library as the solution to the rural public library problem. Operating from a headquarters in the county-seat or other central point and maintaining branches and stations in post offices, stores, community buildings, Grange halls and residences, the county library places its service within easy reach of every family county. Tax-supported county libraries were found in 223 counties in 32 out of 48 states.

Faced with the facts brought to light through the Committee's survey, the American Library Association has set up as the ultimate goal of its efforts the development of adequate public library service within easy reach of everyone in this country and Canada. To that end the Association stands ready to enter into close cooperation with all other interested agencies in organized effort.

Planners and Realtors Cooperate in Subdivision Control

AN event of outstanding importance at the National Conference on City Planning, held in Washington, D. C., last month, was the adoption by the conference of a report of the Joint Committee on Subdivision Control of the National Association of Real Estate Boards and the American City Planning Institute. A report with very similar recommendations* having been adopted by the National Association of Real Estate Boards, these two important bodies are now pledged to cooperate in a movement which promises much for the future of city planning in America.

The city planning committee's report, submitted by Morris Knowles, Chairman; Jacob L. Crane, Jr., T. Glenn Phillips, Irving C. Root, Lawrence Veiller, Robert Whitten and Frank B. Williams, says in part:

"We believe that the time has now arrived when more definite steps should be taken to control the subdivision of land. Not only do city officials, planning boards, realtors, city planners and a large percentage of the public see the necessity for this control, but new traffic conditions and new modes of living require that a very thorough study be be made of platting the unbuilt areas in and adjoining our cities, and that some control be exercised over the subdivision of the land. Mistakes can be avoided in the platting of the unbuilt area much easier than these same mistakes can be remedied in the built-up sections. In many cities it has been customary to extend this control for a distance of three miles beyond the city limits. In larger and rapidly growing centers of population, a larger territory needs to be brought under subdivision control, and this control is in the long run likely to be supplied by means of regional planning.

"Realtors have made wonderful progress in five or ten years' time in their subdivision work. This progress has been evidenced in the small as well as in the larger community developments. However, it remains a fact that the small layout oftentimes does not fit into anything in particular and may look all right by itself until other small adjoining tracts are developed, and finally a network of misfits and an unwieldy community are the result. . . .

"A more or less comprehensive development plan, depending on local requirements, offers a remedy for this unsatisfactory condition. The sale of the small unit of the subdivision or the single building lot can certainly be more readily made, if the purchaser be assured that his property is a portion of a well-considered plan of development, and that this plan will be enforced to a reasonable degree. Such plan, prepared or suggested, would have to be general and not include the small details of platting. Such plans should also consider the practices now in operation in the particular city or section of the country."

*See THE AMERICAN CITY for April, 1927, page 493.

Recommendations

The committee's recommendations in full, as adopted by the Conference, are as follows:

1.—That state planning enabling acts should be enacted, delegating to cities and other political subdivisions the authority to prepare general plans and to approve subdivisions.

2.—That under the authority of such an enabling act a master plan should be prepared for the area of control, showing the location of main thoroughfares, recommendations for open spaces and designating land areas for specific uses.

3.—That the control of the platting of subdivisions should be authorized under the Act and this control exercised by the local planning commission.

4.—That the planning commission should be an appointive, non-political board, serving without compensation, and the members should hold no other municipal office, excepting that certain legislative or administrative officials should be ex-officio members of the commission.

5.—That the master plan and the control exercised should extend out beyond the municipal limits into the non-municipal territory which will sooner or later be developed as a portion of the city; this control to be developed in accordance with a regional plan in cooperation with the adjoining territorial governments.

6.—That the planning commission be authorized to adopt regulations providing for the location, continuity and width of streets, to safeguard travel, prevent congestion and provide proper drainage. Such regulations to include, where and when practicable, the minimum size and area of building lots, and the extent to which street improvements, such as water and sewer provisions, should be made before approval of plats. (In some states bonds are required from the landowner, guaranteeing the installation of these improvements. This seems to be practicable.)

7.—The general requirements for principal public parks and recreational spaces and sites of public buildings should be included as a part of the master plan. Where a landowner has submitted a plat of his land and the authorities have designated in it such a principal public park, recreational space or public building site as part of the master plan, the municipality should take prompt steps to acquire such land, or failing so to do, should act upon the plat, so that the owner can make use of his property. The subdividors should be encouraged to provide small private recreational parks.

NOTE BY THE COMMITTEE.—State enabling acts as recommended in the foregoing, should be broad in the authority. The extent to which this authority shall be accepted and exercised by each municipality will remain for local determination. It is also the work of local real estate boards, chambers of commerce, and other civic organizations to advance and support local ordinances, putting into effect the purposes to be accomplished under the authority of state enabling acts. The city officials in whom is vested the power to appoint members of planning commissions, if supported by public opinion and by civic organizations, will see that a capable planning commission is provided to carry on this important work.

Measures Looking to Crime Prevention

By Philip Archibald Parsons, Ph. D.

THE time has passed when informed men look for a solution of all of society's problems through some simple scheme of social or economic reorganization. While an effective program of crime prevention might, in the long run, approach a reorganization of society, there is no simple and immediate method of bringing it about. An appreciable and highly effective change could be brought about in existing practices, however, which, barring the development of further disintegrating factors, might be expected to accomplish a great deal in the direction of crime prevention. The extension and improvement of the methods of dealing with delinquents; the expansion of the social work program of the public schools; the scientific development of community organization and recreation; a more adequate program of child care, family case work and social health work, are all measures which involve only the development of social work programs which are already under way. If we add to these the development of a scientific system of social education, a scientific system of law making, and a method of socializing the organs which influence public opinion, we ought to be able to make the existing social and economic order function with far less friction between the individual and society. Nothing has been suggested here which is not well within the range of possibility in the relatively near future if we set ourselves to its accomplishment.

The juvenile court is worthy of a much more honest trial than it is getting at the present time. The organization of such a court in all communities and its extension to all children's cases, would no doubt be a long step in the desired direction. While this is being done, it seems reasonable to believe that similar methods might be applied equally successfully to all offenders, with few exceptions, up to the age of twenty-one or even older. Informal procedure and effective probation work should bring equally satisfactory results for many classes of adult offenders. Everything possible should be done to avoid the use of present penal machinery.

The production of a socially satisfactory product should be the goal of public education. The schools have a chance at all the children from a tender age until a fair degree of maturity is reached. The upper limit could be raised if necessary. During this period school officials are in position to detect almost all impediments to normal development. They are in position, also, to remove or counteract nearly all of these, if they were given the authority and the means to do so. A society which allows a defective child to pass through eight or ten years of school, without detecting his defect and taking measures to correct or counteract it, can hardly lay claim to being intelligent. It heartily deserves any antisocial behavior which may result from this neglect of its opportunity.

Recreation as a Preventive of Juvenile Delinquency

Of special interest to municipal officials is Dr. Parsons' emphasis on the importance of organized and supervised recreation as an aid to reducing juvenile delinquency. The author believes that most cities can profitably go much farther than at present in providing recreation facilities, and that community organization for the conservation of community values is as yet in its infancy.

The impediments to normal development are readily classifiable. They are physical, mental, or social. An adequate program of education should include provision for meeting situations created by any one of these. Physical defects may be remedied or the child's education adapted to them in such a way as to prevent them from causing disaster in his later years. Mental inferiority is incurable and should be met with institutional treatment or adequate supervision in the community. Psychiatric disturbances may be anticipated to a considerable extent and the patient saved from a life of wretchedness and possible tragedy. Vocational guidance and vocational training can turn many pre-delinquents into ways of social usefulness. Health work in the schools is designed to enable the child to make the most of his educational opportunities and to secure for him a normal physical development. An adequate social service program in the schools should make provision for an extension of its service into the homes of the children wherever necessary. The visiting teacher and the school nurse should detect unfortunate economic psychic, moral, health, and social conditions there

which are interfering with the child's progress in school. Experience has taught us that most frequently such conditions can be remedied through the proper mobilization of the community's social work resources, including the juvenile court officers and the police.

Unfortunately, most communities look upon the introduction of such work into the schools as "frills" which interfere with the work of education and eat up the taxpayer's money. Some day we shall be intelligent enough to see that it is cheaper in the long run to spend our money for prevention than it is to spend it for correction and custodial treatment. The nation's budget for crime has been shown to be about three times its expenditure for education. The reversal of these figures would bring salutary results without costing us an additional penny. It is probably safe to assert that the trebling of our budget for scientific education should reduce the cost of crime by two-thirds. This does not take into consideration the social and spiritual results which would accompany this transition. An expansion of the social work program in the schools would be desirable even if it had to be secured at the expense of a part of our present cultural program. If society has to choose between a socialized individual a little less informed, and a more learned person without a proper sense of social responsibility, it had better take the former. It has been only a few generations since the majority of people possessed little of the knowledge which our children are being taught in schools today, yet social solidarity was probably greater then than now.

Community Organization and Recreation

There are two outstanding facts which have come to us as a result of the development of juvenile court work. Organized and supervised recreation keeps down juvenile delinquency; and vicious neighborhoods and "gangs" are among the most prolific causes of youthful misconduct. We have only begun to provide facilities for recreation under properly supervised conditions. Some program must be devised to furnish diversion and wholesome recreation for every city child throughout the year. The municipality can go much farther than at present and it should be supplemented by group leadership organizations until every child has opportunity to participate in the activities of a well-organized and supervised group.

The field of providing entertainment and diversion for the youth and adults should not be allowed to remain in undisputed possession of commercial enterprises. The organization of our business and industrial life is now such that the leisure time of most adults requires a very restricted and artificial form of recreation. The solidarity of social groups requires that they should produce their own diversions to a much greater extent than at present. The wedge that is being driven between the young and the old by our system of education and separate amusements for the young and for adults is threatening the very existence of our primary groups—the family, the neighborhood, and the institutions of religion.

Community organization for the conservation of community values is in its infancy. There are, however, definite beginnings which ought to be greatly extended. The work of parent-teachers organizations has great possibilities for bridging the gap between home life and the schools. Community service organizations are promoting community recreation and neighborhood clubs of various kinds. The community house movement has a wholesome ideal, and there are great possibilities in the community church movement. All of these are still hampered by social distinctions and American individualism, but they are demonstrating their worth and increasing in strength and efficiency. There is no alternative. Either we must find ways of preserving group solidarity or suffer the consequences of still further disintegration of our social bonds. Professional, commercial and industrial groups are not sufficient to do the things which must be done. We must have groups that stabilize the family and the neighborhood and keep the young and the old constantly associated through a community of interests.

Social Work Affecting Children

In some respects, at least, the child is coming into its own. At the moment, child health work occupies the center of the social stage. General child welfare is rapidly coming under efficient state management. Family case work, or relief, is developing a technique which is based upon the social value of the home.

Unfortunately, child welfare work and family case work do not take a hand in the affairs of the child until rather desperate circumstances have been reached. Health work is the only one of the three which is forging into the preventive field. The expansion of the social work programs of the schools and such pre-delinquency work as is being done by juvenile protective associations are needed to anticipate many of the problems which now come before child-caring bodies and public welfare bureaus. A greater part of juvenile delinquency arises from conditions which can be anticipated, and

nearly all cases have a period in which preventive treatment may be undertaken with considerable promise of success. It is more intelligent to cultivate the soil where the seeds of crime are sown than to wait and deal with the ripened product.

The average child who enters upon a career of delinquency has been known as a pre-delinquent by the workers of one or more of our social work agencies months or sometimes years before he falls into the hands of the authorities. A community which does not make provision for anticipating trouble in such cases cannot be said to be properly organized for either child welfare or social protection.

ACKNOWLEDGMENT.—From "Crime and the Criminal," copyright, 1926, by Alfred A. Knopf, Inc., New York. The foregoing paragraphs comprise the latter portion of Dr. Parsons' chapter on "The New Conception and Treatment of Crime," the first part of which was published in this magazine for May, 1927, pages 625 to 628.

Is Your City Run on a Business Basis?

By John A. Fisher

Consultant in Industrial Management

THERE is growing up in most American cities today an insistent demand for the greatest possible efficiency in city administration. This is confined, perhaps, to the larger cities, but the possible application to the smaller ones is merely a relative problem. It is probable that in the small city the personal element becomes much more important than in the larger one. Moreover, there seems an undercurrent of feeling that this efficiency can be carried only to a certain limit, because the next election may bring in a new set of officials with very different ideas as to the way of doing thigs.

Still another difficulty presents itself in developing efficient public service. Suppose it does become desirable to put the city administration on a strictly business basis. The question immediately would arise as to how such an organization could be manned with executives and clerical assistants of the quality demanded in private life, at the salaries prevailing for these public positions.

A partial solution to this is the fact that there are certain emoluments for being a public servant beyond the mere daily wage. Besides, if a real demand for a business organization is shown, this low-wage situation may be overcome by the fact that work done efficiently and at least cost assures ability to pay better salaries out of the same budget.

A Separate Unit for All Routine Work

The first consideration involves the separation of all so-called routine work and setting it up as a separate unit under a chief clerk. Within this unit should be concentrated all those jobs which, through service rendered, make the work of the modern executive possible. By this it is not implied that bureau chiefs, for example, should have no personal assistants. Wherever such an assistant can materially increase the productive capacity of his chief, it is only proper to retain him. So far as possible, however, this person should relieve the chief of minor routine work; for example, collecting data, handling engagements, answering routine mail, taking personal letters, keeping private files, and similar tasks can be so delegated.

On the other hand, regular stenographic and typing work should be handled in a central stenographic unit. Filing, except personal files which the officer may take away with him, should all be centrally located. Mail should be opened, sorted, distributed, sealed, and sent out from a central office. Telephone, telegraph, internal and external messenger service, janitor service, office maintenance, control of supplies, and any other routine work of a general nature should center here.

Consider the central files, for example. By such a grouping, we place at the command of the incoming officials a complete knowledge of the previous business, so far as this is evident on paper. When he or the public wants any information from the files, he simply asks for it. The filing clerks have their standards which indicate immediately which officials are entitled to certain information and what records are necessary to see that the information comes back.

Furthermore, the incoming official finds himself immediately ready to work efficiently on his job, unhampered by "red tape," and without the work of office reorganization which so frequently is required when each integral part is handled independently.

Aside from the advantage of this general efficiency, an undoubted economy will result. Even though the clerks so centralized may be paid a higher wage, and the department in which they work may require a chief at a considerable salary, the saving which comes from

the fact that the slack in one department can now be used to take care of the rush in another is considerable. Standards can be set up in the most up-to-date manner that can be discovered by the specialist at the head of the work.

It is not intended to imply tht all clerical labor will be handled in such a central group. The amount of this centralization must depend upon a rather careful individual study.

Centralization of Routine Does Not Hamper the Executive

The objection, however, that centralization deprives the official of the extra assistance which comes from an intimate knowledge of his wants and his ideas of routine, is not a fair criticism. It is admitted that the same stenographer should be assigned to a certain executive wherever possible. It is also possible, when such an executive has an overload of work, to have a secondary stenographer who can fill in. Moreover, when the first stenographer is found to be unoccupied part of the time, it is not necessary to charge the full time to that man's work, because the necessary arrangements can be made for other work for such a person in the central office.

The detail of such a centralized organization cannot be entered into here. One or two requirements are necessary. A chief clerk must be found to handle this organization, who has a knowledge of his subject, good personality, and an ability to get along with people. We do not want to give such a man authority to force his department on the executives. We want him rather, without that authority, to sell the executives the idea that work done as the chief clerk thinks it should be done is best. Such a person will soon so far gain the confidence of the executives that they will be willing to trust his judgment, even though they are not convinced as to details.

Cost of the Serial Bond Dollar

THE California Taxpayers' Association of Los Angeles has issued, in its bulletin, *The Tax Digest,* and in reprint form, a table, a portion of which is here reproduced, showing the cost of serial bonds for terms of from 5 to 50 years. The amounts in the columns represent the total of interest and principal which must be repaid for each dollar borrowed for the term indicated at the left and for the interest rates shown at the head of the columns; it being assumed in each case that the bonds are to be redeemed in equal annual installments, beginning one year from date of issue.

In considering every proposed expenditure of public money, the California Taxpayers' Association suggests the following acid tests: (1) Is the proposed plan a proper function of government? (2) Can we afford it? (3) Is the proposed plan the most economical to procure the needed results? (4) How can the money be raised equitably? (5) How may we secure the wisest and most economical expenditure of the money? (6) If this money is to be raised by bond issue, will the proposed improvement outlast the term of the bonds, or will we be paying on bonds when the improvement is entirely gone?

Term	4%	4¼%	4½%	4¾%	5%	5¼%	5½%	5¾%	6%
5	1.12	1.1275	1.1350	1.1425	1.15	1.15750	1.1650	1.17250	1.18
6	1.14	1.14875	1.1575	1.16625	1.1750	1.18375	1.1925	1.20125	1.21
7	1.16	1.17	1.18	1.19	1.20	1.21	1.22	1.23	1.24
8	1.18	1.19125	1.2025	1.21375	1.2250	1.23625	1.2475	1.25875	1.27
9	1.20	1.21250	1.2250	1.23750	1.25	1.26250	1.2750	1.28750	1.30
10	1.22	1.23375	1.2475	1.26125	1.2750	1.28875	1.3025	1.31625	1.33
11	1.24	1.2550	1.27	1.2850	1.30	1.3150	1.33	1.3450	1.36
12	1.26	1.27625	1.2925	1.30875	1.3250	1.34125	1.3575	1.37375	1.39
13	1.28	1.29750	1.3150	1.33250	1.35	1.36750	1.3850	1.40250	1.42
14	1.30	1.31875	1.3375	1.35625	1.3750	1.39375	1.4125	1.43125	1.45
15	1.32	1.34	1.36	1.38	1.40	1.42	1.44	1.46	1.48
16	1.34	1.36125	1.3825	1.40375	1.4250	1.44625	1.4675	1.48875	1.51
17	1.36	1.38250	1.4050	1.42750	1.45	1.47250	1.4950	1.51750	1.54
18	1.38	1.40375	1.4275	1.45125	1.4750	1.49875	1.5225	1.54625	1.57
19	1.40	1.4250	1.45	1.4750	1.50	1.5250	1.55	1.5750	1.60
20	1.42	1.44625	1.4725	1.49875	1.5250	1.55125	1.5775	1.60375	1.63
21	1.44	1.46750	1.4950	1.52250	1.55	1.57750	1.6050	1.63250	1.66
22	1.46	1.48875	1.5175	1.54625	1.5750	1.60375	1.6325	1.66125	1.69
23	1.48	1.51	1.54	1.57	1.60	1.63	1.66	1.69	1.72
24	1.50	1.53125	1.5625	1.59375	1.6250	1.65625	1.6875	1.71875	1.75
25	1.52	1.55250	1.5850	1.61750	1.65	1.68250	1.7150	1.7475	1.78
26	1.54	1.57375	1.6075	1.64125	1.6750	1.70875	1.7425	1.77625	1.81
27	1.56	1.5950	1.63	1.6650	1.70	1.7350	1.77	1.8050	1.84
28	1.58	1.61625	1.6525	1.68875	1.7250	1.76125	1.7975	1.83375	1.87
29	1.60	1.63750	1.6750	1.71250	1.75	1.78750	1.8250	1.86250	1.90
30	1.62	1.65875	1.6975	1.73625	1.7750	1.81375	1.8525	1.89125	1.93
31	1.64	1.68	1.72	1.76	1.80	1.84	1.88	1.92	1.96
32	1.66	1.70125	1.7425	1.78375	1.8250	1.86625	1.9075	1.94875	1.99
33	1.68	1.72250	1.7650	1.80750	1.85	1.89250	1.9350	1.97750	2.02
34	1.70	1.74375	1.7875	1.83125	1.8750	1.91875	1.9625	2.00625	2.05
35	1.72	1.7650	1.81	1.8550	1.90	1.9450	1.99	2.0350	2.08
36	1.74	1.78625	1.8325	1.87875	1.9250	1.97125	2.0175	2.06375	2.11
37	1.76	1.80750	1.8550	1.90250	1.95	1.99750	2.0450	2.09250	2.14
38	1.78	1.82875	1.8775	1.92625	1.9750	2.02375	2.0725	2.12125	2.17
39	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20
40	1.82	1.87125	1.9225	1.97375	2.0250	2.07625	2.1275	2.17875	2.23
41	1.84	1.89250	1.9450	1.99750	2.05	2.10250	2.1550	2.20750	2.26
42	1.86	1.91375	1.9675	2.02125	2.0750	2.12875	2.1825	2.23625	2.29
43	1.88	1.9350	1.99	2.0450	2.10	2.1550	2.21	2.2650	2.32
44	1.90	1.95625	2.0125	2.06875	2.1250	2.18125	2.2375	2.29375	2.35
45	1.92	1.97750	2.0350	2.09250	2.15	2.20750	2.2650	2.32250	2.38
46	1.94	1.99875	2.0575	2.11625	2.1750	2.23375	2.2925	2.35125	2.41
47	1.96	2.02	2.08	2.14	2.20	2.26	2.32	2.38	2.44
48	1.98	2.04125	2.1025	2.16375	2.2250	2.28625	2.3475	2.40875	2.47
49	2.00	2.06250	2.1250	2.18750	2.25	2.31250	2.3750	2.43750	2.50
50	2.02	2.08375	2.1475	2.21125	2.2750	2.33875	2.4025	2.46625	2.53

AMOUNT REQUIRED FOR INTEREST AND REDEMPTION FOR EACH DOLLAR OF SERIAL BONDS AT VARIOUS TERMS AND RATES OF INTEREST

Keene's Future Fearless Fire Fighters

By Adolf W. Pressler

Member of Board of Education, Keene, N. H.

WHO are these Fire Fighters? They are the boys of the fifth and sixth grades in Union School District, Keene, N. H. What is their object? To begin early in life to safeguard themselves and others against the danger of fire.

How is it done? They listen to talks giving instructions on what to do in case of fire. These talks tell how to prevent panic when in schools, theatres and other public buildings; they counsel the boys to keep cool and not get excited, and to aid others to do the same; they tell about the danger of playing with matches and of letting rubbish accumulate; about the destruction of oily rags, the care of gasoline, the proper way to treat one's clothing when it is on fire, the importance of turning off the gas and not blowing it out; how to handle live wires, how to ring in a fire-alarm, how to fight grass fires. Stress is laid on how to prevent and to fight fire. These talks are given by expert retired and active firemen—not once a year, but several times. The Chief and his assistants have taken a keen interest in the F. F. F. F.'s department since the idea was conceived by the present writer. The department consists of the following companies: Lincoln, Franklin, Roosevelt, Tilden, and Symonds. The membership is 150, more or less.

The manual training department of the school maintains the interest in the civic lesson taught by the F. F. F. F. The fifth-grade boys make firemen's axes at the beginning of the fall term. They are handsomely and attractively painted, with the names of the owner and the school inscribed thereon. These axes are carried at the annual firemen's parade. The sixth-grade boys make their own ladders, after the writer's design. Each boy receiving 95 per cent or more in manual training becomes the owner of one of these ladders. They are 12 and 14 feet long, made of 2-inch spruce furring, and are strong and rigid.

The boys are taught how to raise, climb and lower a ladder. To make it still more interesting, each school has either a boy-made ladder truck, or a life-saving net, hose, or chemical wagon. To cap the climax of interest, the writer secured for this department the oldest hand fire pump in Keene. History records it as having been usen in 1848.

The greatest event of elementary school activities is "The Fearless Fire Fighters' Day,"

THE YOUNG FIRE FIGHTERS OF KEENE, N. H.—THEIR EMBLEM AND THEIR WORK
The three views show the ladders in use for training; a lesson in putting out a fire with an extinguisher; and the Old Hand Pump in action

which takes place the last of May each year. The department has a chief, two assistants and five foremen, appointed according to their standing in the manual training department. A parade through the principal streets of our city and inspection by the Mayor and Chief of the Fire Department are held. Hundreds of citizens are always in attendance, as well as the girls from the various schools. After the inspection the different companies have competitive tests, such as raising and climbing ladders, laying hose to hydrants, and getting first water.

"Are you ready?" comes the order of the Chief, and the greatest excitement of the day is about to take place. The Old Hand Pump begins to move—one, two, three, perfect time. The faces of the Future Fearless Fire Fighters disclose the responsibility of real firemen.

Tug-of-war trials between the companies are contested with every ounce of strength. The day closes with the free lunch to the firemen, such as hot dogs and ice cream, furnished by generous merchants or Parent-Teachers Associations.

A Decision Which May Have an Important Effect on Rate-Making for Urban Public Utilities

BY a six to four vote, on March 31, the Interstate Commerce Commission decided to base its railroad valuations upon pre-war prices for pre-war installations, giving effect to higher prices to the extent to which they were actually incurred. The railroad companies' contention that their property is worth what it would cost to rebuild at present was denied. Under the 1913 valuation act the Commission has in effect found the value of the structural property in existence in 1914, applying prices of that period; and has included additions since that date at their actual cost to the railroads, thus producing a composite which approximates the total actual cost of structural property, in the general absence of complete accounting records. Land values used are based on market values of similar adjacent land.. Property retired from service has, of course, been eliminated; and a deduction for depreciation has been made. The Commission now announces that it will stand on this general basis in adopting railroad valuations, for rate-making and in connection with the recapture of excess earnings. It says further:

"The value of the property of railroads for rate-making purposes . . . approaches more nearly the reasonable and necessary investment in the property than the cost of reproducing it at a particular time."

This subject comes to the fore in the case of the St. Louis & O'Fallon Railway, with a nine-mile line out of East St. Louis, Ill., operated by the Anheuser-Busch Brewing Association. The point directly at issue was the recapture of excess earnings from March 1, 1920, to December 31, 1923, inclusive. Commissioner Meyer, writing the majority opinion, said:

"We are dealing here with one small railroad; nevertheless what we do in this case we must in principle do for all the railroads of the United States. Whatever our decision, its effect in money is relatively unimportant in this particular case. But, having in mind, as we must, the whole railroad situation, the decision is of the greatest consequence from both the private and public viewpoints."

News accounts and newspaper editorials have in some cases been rather misleading, tending to give the impression that the entire railroad property was to be valued as of 1914, including property installed at the higher price levels since then. This idea is, of course, incorrect. Nevertheless, the Commission's ruling is of a fundamental and decisive nature, affecting billions of dollars in the spread between valuation claims of private companies and of public representatives, respectively, not only for railroads but also for urban public utilities. The Commission has boldly challenged the general trend of the Supreme Court's valuation decisions, which have been in public utility cases, and presents the issue in a clear-cut way, with its implications as to public policy, vast property values, constitutional guaranties, the equities of investors, the protection of shippers and the economic interests of the country at large, all brought into focus to a degree never before attained.

The Commission points out that the present-day reproduction-cost method of valuation would prevent stability of rates and produce fluctuating results that would be unjust and unworkable; and states that, between that theory and the one adopted by the Commission majority, there is no middle ground "which is capable of being applied by any rule independent of the caprice of those who apply it." The Commission's valuation basis, it was stated, will not disturb the investing public, which is accustomed to it now, nor the present general level of railroad rates.

Besides Commissioner Meyer, those participating in the majority opinion were Commissioners Eastman, McManamy, Lewis, Esch, and Campbell. The case is, of course, expected to go to the Supreme Court for final decision.

What Is Sound Water-Works Financing?

By Caleb Mills Saville

Manager and Chief Engineer, Board of Water Commissioners, Hartford, Conn.

ALL business endeavor to succeed must be founded upon a sound financial basis, and the business of furnishing water is no exception to this proposition. The essentials of both privately and publicly operated utilities are the same. The apparent differences are merely branches, as it were, of a single stem. The owners of the private utility are stockholders who take profits on their investments through dividends. The consumers are the stockholders in the municipally owned plant and take their profits in rate adjustment and other common advantages.

In properly operated water-supply systems, however, whether publicly or privately controlled, the basic financial and operating methods may be considered as practically the same, and, except as noted hereafter, no distinction will be made between them in this discussion.

A Yardstick

Municipal officials, and water-works officials in particular, will do well to study Mr. Saville's article carefully and then apply its suggestions and conclusions to their own water-works financing problems.

In the first place—and it should really go without saying—proper bookkeeping and accounting methods must prevail. To get efficient results, a proper income is the first requisite. To secure this, need must be shown. To show the need, facts are required, and these facts can be had only from clear financial statements.

The best production can be had only through comparison with similar work elsewhere, and to get this, a uniform system of accounting and of some general supervision is most desirable. Such control is found under the public utilities commissions or similar bodies now established in most, if not all, states. How far such bodies should exercise control or regulation over publicly owned utilities is a matter for local determination, but it does seem desirable, in the interests of the whole, that some liaison authority should be recognized in order that no injustice may be done to any.

Rates and the Rate Base

The first problem that presents itself is the matter of rates and the rate base. The Wisconsin Superior Court has said:

"Having due regard for public interest, it is a matter of policy that the rates should be large enough to earn a return which will attract capital to the utility field, which will readily permit expansion and extension of the utility service and keep it in a high state of efficiency; which will attract to the utility field the best type of sound, economical, aggressive managerial ability and in other ways stimulate productive activity which will be for the benefit of the public and incidentally for the benefit of the investor. Capital is not attracted to an enterprise which must constantly travel near the financial deadline which divides prosperity from bankruptcy, and the creative genius of managers is not stimulated by deficits."

The amount of return which a public service corporation receives depends upon the rate base which is the value of the investment upon which the utility is entitled to earn a return and upon which the rate of return is allowed. The rate base must be reasonable, and a fundamental requisite is that it shall not fluctuate too greatly with changing prices and conditions of operation. There is no formula or other well-defined path by which it is possible to arrive at the true value of any property. All the ways, devious and otherwise, that have been proposed by experts and examined by courts and commissions in the last analysis are useful merely as guides to seasoned judgment based on common-sense determination of the presented facts.

In valuations for rate making the cost of service is a chief factor, and the return to investors may be stated as the sum of interest on investment and profits on operating expenses capitalized at a "fair return" rate. What constitutes a fair and reasonable return rate has been said to be "just about the point below which confiscation begins, on the border line between valuation and rate fixing." It is significant of the close relationship between valuation and rate of return to consider that if a fair rate of 8 per cent is assumed, a variation of only 1 per cent either way in rates is equivalent to 12½ per cent in valuation.

Future Price Levels

One of the essential elements to be considered in reaching a conclusion as to "fair value" is what may be the future trend in price levels due to the unprecedented disturbances during and since the World War. Pre-war levels cannot be considered in present-day valuations, and whether or not upkeep in all parts of the system, because of those conditions, has lagged, is a

matter for first consideration. Hence, the approach to the so-called vicious circle. Service requires upkeep, upkeep must have proper rates, proper rates demand proper service.

The fundamental principle laid down by the Supreme Court of the United States in 1897 in *Smyth v. Ames,* has served since as a basis on which modern rate making stands. The Court said:

> "The company is entitled to receive a reasonable return for the service it furnishes, and no more; the public is entitled to receive an adequate return for the reasonable rate it pays, and no more . . . What the company is entitled to ask, is a fair return upon the value of that which it employs for the public convenience. On the other hand, what the public is entitled to demand is that no more be exacted from it . . . than the services rendered are reasonably worth."

In the New York Telephone case, the Court said:

> "It is enough if it (the property) is used to render service. The customers are entitled to demand service, and the company must comply. The company is entitled to just compensation, and to have the service the customer must pay for it." (Bd. P. U. Com. v. N. Y. Tel. Co., Sup. Ct. Op. May 1, 1926, page 436.)

What this reasonable worth of service may be is a most difficult problem for which to find a precise solution. As an index for guidance, consideration should be given to the market value of money, fair value of the property, financial history in payment of dividends, the amount of surplus reinvested in the plant equipment, the record of financial operations, and the character of the service rendered. The tendency of the courts seems to be to regard property and its value rather than its cost in considering rate adjustment.

Proper Rate of Return

As to the proper rate of return, records of decisions of courts and public utilities commissions indicate an average allowance of about 7 or 8 per cent on the value of the property used and useful.

In the case of municipal work, the rate base may be put at a figure sufficiently high to include cost of expansion of the plant, because the ratepayers stand in the place of the stockholders, whose property the plant is. In the case of privately owned plants, this plan is not sound and is forbidden by rate-making bodies as unjust and unequitable to the ratepayers because of the tendency to make consumers pay for plant which becomes the property of the company, which in turn, as the value increases, will ask for greater returns on investment, a part of which it has not financed.

Rates for Water Service

In the establishment of rates for water service, an apportionment must be made between public and private users, and a well-balanced return should be worked out on the portion of the investment allocated to each. In a plant serving a manufacturing city of about one hundred thousand people, the following subdivision was made in the reproduction cost of the distribution system: domestic service 44 per cent; industrial service 37 per cent; and public fire protection 19 per cent. The relative capacities of the pipe systems required by the different classes of service were: domestic service 22 per cent; industrial service 31 per cent; and fire protection 47 per cent.

Service for fire protection, either public or private, is entirely distinct from the service of supplying water for ordinary community use. The former demands "ready to serve" features entirely distinct from those of ordinary water consumption, and rate-making bodies have consistently held that the omission of fire protection charges as a separate item in the rate schedule is discrimination in favor of a portion of the community and therefore unlawful. The value of fire protection service is not determined by the amount of water used, but by the property protection afforded to the community as a whole in the case of the municipality and to the owner himself in the case of private supply.

Many arguments are put up by private interests against a charge to them for service in their private water systems, but the fact remains that service is given which costs money to the community, and by this service the individual receives much personal profit through a great reduction in insurance rates as well as assurance of continuity in his business.

The annual quantity of water for fire protection from a supply system is comparatively small, but the amount required for concentration during a short time on any one fire may be considerable. Hence, the large size of the pipe, the excess capacity of the pumping-plant and the reserve in storage capacity of distributing reservoirs.

The best method at present devised for proper allocation of charges for water service appears to be for consumers to pay directly for such use as is of personal benefit, and for property to pay indirectly through an increment in the tax levy for protection against fire.

The cost of fire protection service is considerably more than is generally recognized. In communities of from 5,000 to 300,000 people

the cost of this feature may vary respectively from 75 to 15 per cent of the total cost of the works, and rate-making bodies have allowed from a quarter to a third of the gross revenue to be charged to this service. The best method of arriving at this charge is by computation based upon the number of "inch-feet" in the water-main system and to add to this a reasonable amount for hydrant maintenance.

Division of Cost of Water Service

There are three recognized divisions of the cost of water service—customer, demand, and production. Customer costs are those placed on the work by necessary duties to be performed irrespective of the amount of water used or whether any water is used at all, such as maintenance of the individual service and meter, reading meters, billing and collecting. The demand charge also is irrespective of the amount of water used, and relates to the capacity of the system and ability to give the consumer what he wants when and as he wants it. The production charge relates entirely to the quantity of the product used, and varies directly with the demand.

The first two of these items constitutes the basis of the so-called "service charge," that is, a charge made for ability to meet the desire of the consumer when and as he calls.

The prevailing tendency in rate making is away from the uniform rates and toward a sliding-scale schedule that will enable the large user and the long-hour user of the utility's facilities to secure a more advantageous rate than others whose use is less or intermittent.

A municipality should not be allowed to charge rates which will produce a surplus to be transferred to the general fund for the benefit of those who pay taxes. All ratepayers are not taxpayers, and a jumbling of accounts is not conducive to business efficiency, besides putting an unfair burden on a portion of the community at the expense of another.

A surplus in municipal accounting is justified only to such an extent as is reasonably necessary to carry on the work from year to year during the fluctuations which come in any business. Under a well-considered plan for future improvement, it is justifiable also to accumulate a sum for this purpose from water-rates to be used in the case of a long-term bond issue. Such a fund, however, should be so hemmed about that it will be impossible to use it for any other purpose.

The argument that "it is all city money and the use of water department funds is merely taking from one pocket to another" is the specious argument of political exigency and will not bear investigation or logical discussion. Accounts should be kept entirely distinct and made up as accurately and in as much detail on municipal work as is required in any well-managed private utility.

In the case of the municipal department, taxes may be remitted in lieu of payment for fire protection from the water system, but even this is of doubtful value and it is better to have clear-cut financial dealings in every part of the works. So-called "free water" should not be allowed for any purpose whatsoever, be it public, semi-public, or charitable. Free water service is usually one of the most expensive leaks in the water department finances and is frowned upon by public utility bodies as being in the nature of discrimination. All water furnished for any purpose should be paid for at the established rates. Any other course than this is suicidal to financial records and blocks inquiry as to the condition of the department's finances and whether or not the business is being conducted in a business way.

The Service Charge

The propriety of the service charge has been sustained by the Public Utilities Commission in nearly all the states and upheld by court decision. There is, however, general opposition to it, and oftentimes the best compromise is the so-called "minimum rate"; that is, a fixed charge, usually dependent on the size of the meter, which must be paid whether or not water is used, but allowing a certain amount of water without extra payment. All water used over this amount is paid for at the regular rates.

Meters

The use and installation of meters on consumers' service pipes must be considered as an integral part of the water-supply financial structure. Under the so-called flat rate service, customers grow careless and allow faucets to remain open and leaky plumbing to go unrepaired. Such conditions bring nearer the time when large expenditures of money must be made for extensions of the supply system, and it can generally be shown mathematically that the cost of meter installation is more than saved in interest charges by delay in the larger expenses of additions to the works. Meter installation, however, is not, and never can be, a substitute for needed additional supply works, and it is the part of wisdom for every water-supply utility, whether privately or publicly owned, to see to it that it has a plentiful supply of water in the pipes to meet future as well as present needs.

Reserve Fund

Every well-conducted utility establishes reserve funds for depreciation or retirement to replace such parts of the plant as become useless or inefficient through obsolescence, change in the art, or accident. This fund is sacred to its purpose and must not be drawn on for ordinary expenses of operation. It may, however, under certain conditions, be invested in capital expenditures.

Capital expense may be financed from surplus, that is, net income, long-term bond issues, or customer contributions. The long-term debt should be undertaken only under stringent requirement of use, future payments, and sinking-fund requirements for amortization. Net income may well be applied to the minor and less expensive parts of the plant, such as street mains, and hydrant and meter installations, while the moneys available from the long-term debt should be used for major structures such as transmission mains, filter plants, reservoirs, and impounding work.

This method assumes that present ratepayers should not be called upon too largely to finance works of the more permanent character from which future generations will derive equal benefits, but that an equitable adjustment of present and future burdens be made through interest and sinking-fund payments.

Customer contributions may be obtained from payments from service installations, assessments against property for main pipe installations, and other expense for work from which the consumer derives a special advantage not shared by all the ratepayers. In this connection, however, careful determination must be made of the purpose of the intended benefit, as it is unnecessary that all should actually use the intended addition if the benefit is such that it may be of some value to the district as a whole.

Franchise to Private Company or Water Districts?

To give the best, or the necessary, water service in some cases is a difficult and serious matter on account of financial conditions or the inability of even a willing public to undertake expenditures which are beyond their powers. To overcome such obstacles, private capital may be enlisted and a franchise given which will be attractive to capital and permit of such consolidation and economy of operation as will provide the required service at reasonable rates.

Another way out of this difficulty, and one which at the present time is very highly considered both here and abroad, is the creation of water districts. The boundaries of these districts may well be the natural configuration of the locality, rather than the political subdivisions of the state. Collectively, such community interests can finance undertakings far beyond the power of any single unit, as a bonding capacity may be set up independent of the several cities and towns comprising the district.

The district method for the publicly owned and operated plant is somewhat analogous to the business methods of the so-called holding company by which, obtaining control of a number of individual plants, it is able to scrap inefficient and duplicate apparatus and by unification of output establish large-capacity units with resulting economies of operation.

As a general rule, it appears that individual communities are jealous of each other and loath to combine for mutual advantage. Opportunities are lost thereby, and privileges that might be theirs are wanting because of unwillingness to cooperate.

It is probable that the state has possibilities all untouched and undreamed of at the present time if only approach can be made in the right way. Professor W. J. Brown, of the University of Adelaide, South Australia, has summed up this thought in his recent book, "The Underlying Principles of Modern Legislation," in the following words:

> "If, then, we take the various forces already mentioned and regard them in combination, the pressure of social and economic problems, the demonstration of our political machinery, and the growth in the sense of collective responsibility, we must conclude that the supreme problem of the future will be not how to thwart the movement toward state control, but how to direct it in such a way as to achieve legitimate ends without sacrificing the individuality of the citizen."

ACKNOWLEDGMENT.—From a paper prepared for presentation at the Round Table discussion of the Public Service Institute of the Massachusetts Institute of Technology and the Massachusetts Civic League in Cambridge, Mass.

NEW WORLD RECORD FOR LOWEST INFANT MORTALITY RATE, NEW ZEALAND

New Zealand has still further lowered her world-record infant mortality rate, according to vital statistics of the Dominion for 1925, which report a figure of 39.96 per 1,000 live births as compared with 40 in 1924. In some of the large cities the rate was even lower, that for Dunedin being 33 and for Wellington 35.

These figures for New Zealand are quoted by the Children's Bureau of the United States Department of Labor, which states that the provisional United States rate for 1925 was 72.

Width of Right-of-Way the Foundation of a Rational Highway System

By Colonel Sidney D. Waldon
President, Detroit Rapid Transit Commission

THE public do not generally understand the difference between width of right-of-way and width of pavement. They confuse roadway with right-of-way. A narrow pavement in a wide right-of-way can be increased at any time, but a narrow pavement in a narrow right-of-way, particularly through a thickly built-up and congested district, is well nigh hopeless.

The foundation of the whole structure of any plan for present and future transportation lies in the standards adopted for the various widths of right-of-way and the subsequent adherence to these standards.

The Master Plan

What is needed in every village, town and city in every township, county and state is a Master Plan of the main arteries of transportation. Today no community can afford to consider its situation as separate and distinct from the communities with with which it is linked by trunk-line highways. The automobile and good roads flood the streets of the remote hamlet with the traffic of a great city.

In our opinion every village in the country should adopt a standard of not less than 120 feet of right-of-way for the two thoroughfares that intersect at its business center, and should steadfastly work to acquire that width upon its two main streets and upon the section-line roads that come within its influence.

120-Foot Standard

In thinly settled states or sections where land is cheap, the right-of-way can be made 120 feet just as well as any other width. In the snow belt the wide right-of-way may be the cheapest investment for dropping the drifts far enough from the traveled road surface to minimize the cost of snow removal. In thickly settled states the traffic will demand wide rights-of-way along all the important main arteries.

The village requires 120 feet because of the space using automobiles and the need of parking space for its own business without blocking the through travel. The great city requires 120 feet because it must carry the great bulk of its mass transportation below ground. No opportunity should be lost by the village to acquire the 120-foot widths as early as possible.

Highway Widths in the Detroit Region

Detroit, the counties of Wayne, Oakland, and Macomb, and the contained municipalities, have created and adopted a Master Plan of super-highways and interior thoroughfares.

Super-highways are	204 feet wide
Mile section line roads and interior thoroughfares are	120 feet wide
Quarter-section roads and secondary streets are	86 feet wide
Residence streets are	60 feet wide

Automatic Dedication

Adoption by the three counties means that

120-Foot Right-of-Way Advocated for Every Village Main Street

At the 1927 Conference on Highway Engineering, recently held at the University of Michigan, special emphasis was given to the urgent necessity of creating plans now for the gradual reshaping of the old horse-and-buggy standards of street and highway widths, not only in the Detroit Metropolitan Area, but throughout the United States as a whole.

In his address at this conference, excerpts from which form the accompanying article, Colonel Waldon summarized his recommendations as follows:

"This is no time to spend in vain regrets for what was not done in the past. Let us forget the mistakes and omissions of yesterday. Our forefathers could not foresee the coming of the automobile. But let us keep constantly before us the fact that during the next 70 or 80 years we are going to add another 50 millions to the population of 1920 and another 50 millions to our motor-vehicle registrations. Let us remember that only through the adherence to a Master Plan can our growth be orderly and in proper relation to our growing needs. Let us sink our super-highways as deeply as possible into the outskirts of our great cities, and then work outwards. Let us make 120 feet the minimum standard right-of-way width for every Federal and state trunk-line highway in this country.

"Let us remember that traffic, and with it development, goes where it is invited and stays where it is well treated. Let us remember that those sections will benefit most that contribute most to the success of the plan. Also let us remember that we can do today, simply as the result of the existence of a logical plan, what may cost millions, or be impossible, tomorrow.

"The untouched opportunities of the present are almost without limit if we have the vision to see and the will to do."

no plats for subdivisions are accepted by the several boards of auditors that do not provide for dedications of right-of-way to the standards prescribed along the particular routes affected.

Like the mill of the gods, this one provision is automatically and continually grinding out the necessary widths of rights-of-way all over the metropolitan area as our population and traffic grows. Time is working for us and not against us. It is not only saving untold millions of dollars in future condemnation suits, but through establishing a greater potential traffic capacity it is stimulating a more valuable development of the property served and is thereby increasing taxable assets.

Super-Highway Commissions

In addition to this method of the three county boards of auditors, private property owners associations are doing wonderful work along the Master Plan routes in which they are especially interested. Added to these influences are county and state highway commissions, and a new form of organization created under special act obtained for that purpose, known as Super-Highway Commissions. The latter are created solely for the purpose of acquiring rights-of-way, the improvement of which rests with the road commissions as before.

What has been said about the super-highway portion of the Master Plan applies particularly to large cities and their suburbs. In principle it is applicable to every village, town, city, county, and state in the country. Potentially great cities with heavy motor vehicle registrations demand a network of 204-foot superhighway rights-of-way, while trunk-line routes of major importance across the states should not be less than 120 feet wide from fence to fence.

Right-of-Way Acreages

A mile of 66-foot right-of-way contains 8 acres of land, while a mile of 120-foot right-of-way contains 14½ acres. The difference is 6½ acres per mile. Along one of our trunk-line roads the average cost of land purchased at its assessed value for widening the right-of-way was $400 to $500 per mile, and fence replacing cost $700 per mile. *The two amounts, together, only approximated 3 per cent of the average pavement cost.* There was some additional expense for moving buildings.

Penny-Wise, Pound-Foolish

In our opinion it is economically unsound to invest 35 to 40 thousand dollars, or more, per mile in hard-surfaced roads in a right-of-way of 66 feet when at so little increased cost it can be brought up to what should become the trunk-line road minimum for the entire United States. It should not be less than 120 feet. The pavement invites traffic and enhances the value of the land adjacent and served. Traffic creates business and encourages the erection of buildings which hug the narrow right-of-way. To widen, requires the destruction of buildings and the payment of high land prices created by reason of the service given by the pavement. An adequate width of right-of-way should be considered as of just as much importance as the thickness of the concrete or the preparation of the subgrade to receive it.

Right-of-Way Law

If the wisest thing was done for this country, Congress would pass a law under which no Federal Aid money would hereafter be spent on any national trunk-line highway the right-of-way of which was below a minimum standard width of 120 feet. Failing this, the several states should enact such legislation. The very least that should be done would be for the various states to pass setback laws prohibiting the erection of buildings within 60 feet of the center line of any concrete or hard-surface pavement upon the Federal and state trunk-line highway systems.

The foundation of the whole structure is the width of right-of-way. The very first operation, therefore, and one that should precede or be coincident with the laying of the first improved road surface should be the acquisition (or reservation by setback lines) of the necessary land to provide for successive widenings of the pavement in keeping with the strategic importance of the route. While laying the pavements to serve the 22 millions of motor vehicles to-day, we must keep in mind the vastly greater needs of the 30, 40, 50, and 70 millions of to-morrow.

Acquiring these rights-of-way will not happen of itself. It must be brought about through the preparation of a logical plan that will not only set up the necessary legislation foundation, but will effectively unite the active interest and support of all the officials best able to carry the plan through to a successful conclusion.

The Semi-Annual Index of THE AMERICAN CITY, covering January-June, 1927 (Volume XXXVI), is given on the last 8 pages of the June issue.

Grade Separation at New Carlisle, Ind.

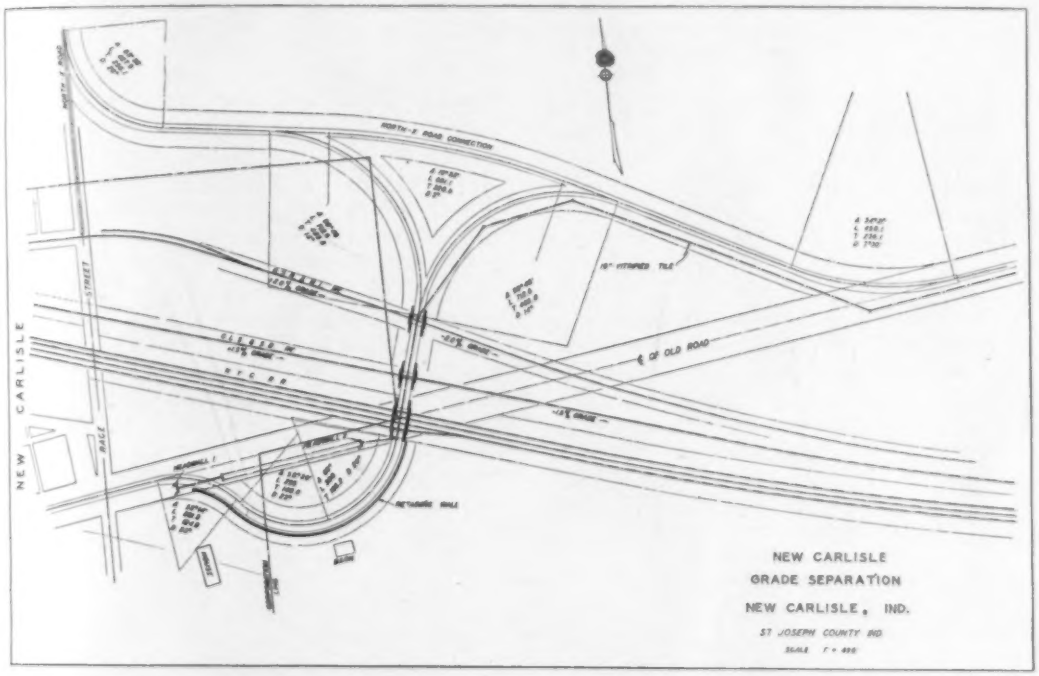
By P. R. Gillin
Civil Engineer, South Bend, Ind.

IN the summer of 1912 the Lincoln Highway Association laid out and established the route of the Lincoln Highway across St. Joseph County, Indiana. The route chosen was over the old Vistula Road from the east county line into South Bend and from South Bend west through New Carlisle to the west county line over the old Michigan Road. Soon after the road was established, a petition was filed for its paving, and the contract was awarded September 14, 1914.

The sharp angle made by the Lincoln Highway and the New York Central Railroad near the east town limits of New Carlisle and the rather steep approach on the highway to the crossing, as well as the high-speed trains run over this section of the railroad, made this a very dangerous crossing. A number of disastrous accidents had occurred, resulting in loss of life and property. Knowing that paving this road and making it a part of the transcontinental route would increase the traffic over it and thereby increase the hazard, it was evident to everyone that something should be done to eliminate the danger.

From May 22, 1916, when the Board of County Commissioners of St. Joseph County passed a resolution relative to the need of a grade separation at this point which would include all the railroads, until February 2, 1925, when a joint agreement was signed by the New York Central Railroad Company, the Chicago, Lake Shore and South Bend Railway Company, the Chicago, South Bend and Northern Indiana Railway Company, St. Joseph County, and the town of New Carlisle, Ind., this project was continuously assailed by one party or another.

Under the terms of the agreement the separation of grades was to be accomplished by a separate subway under the tracks of each of the three railroads and at right angles to and at the point where the center line of the Lincoln Highway intersects the center line of the westbound main tracks of the New York Central Railroad. It was agreed that the present grade of the New York Central Railroad should not be changed and that the grade of two of the other railroads should be raised about 8 feet and one about 11 feet.



Preliminary Survey

In making the preliminary survey, a center line of the Lincoln Highway was first established and the distance from the end of the old concrete pavement east of the proposed sub-

VIEW LOOKING SOUTHWESTERLY ALONG THE 20- AND 23-DEGREE CURVE, SHOWING THE RETAINING WALL AND PAVEMENT

ways to the center line of the crossroad was accurately measured. Other data were secured and the information was platted to a scale of 50 feet to 1 inch and a complete layout of the project made on paper.

The estimated cost of the entire project was $200,000. The expenditure of this large sum of money was aimed to eliminate a death-trap, and the idea uppermost in the engineer's mind was to construct the approaches to this crossing so that they would be safe for the traveling public for years to come. The engineer of today who is entrusted with the location and construction of public highways, if he functions rightly, must be ten years ahead of public opinion. He must have a vision of the public's demand in the future. If there is as much change in public opinion regarding highways in the next ten years as in the last ten years, many of the roads constructed today will either be reconstructed or abandoned and new roads built, because of the excessive grades and sharp curves which are now being constructed.

After considerable surveying and laying-out of the project on the ground, further difficulty was experienced with a landowner who started litigation to test the utility of the project. All of this was holding up the completion of the work, and the people of New Carlisle were becoming very impatient.

Adequate drainage for the subway required considerable thought. The subway is located at the foot of the hill. To the east and north lies Terre Coupee Prairie, a very flat, level country. Levels were run north along the crossroad and east along the Lincoln Highway. About one mile east of the subway on the south side of the Lincoln Highway is an open drainage ditch tributary to the Kankakee River. It was found that by keeping the drainage pipe under the pavement in the subway as high as possible, a fall of 0.125 per cent could be obtained, so this was the outlet used.

The run-off from the pavement on Lincoln Highway in New Carlisle, and a good portion of the town run-off itself, flows along the gutters of the Lincoln Highway, and previous to the construction of the subway it followed an

SOUTH ENTRANCE TO THE NEW YORK CENTRAL RAILROAD STRUCTURE, LOOKING DOWN THE 4 PER CENT GRADE

open ditch along the south side of the New York Central Railroad. Because of the sandy nature of the soil in the approach cut of the south entrance to the subway and the possibility of washing, it was decided that it would be best to prevent any water from running into this cut.

The run-off from New Carlisle was carried along each side of the Lincoln Highway as formerly, using an 18-inch reinforced concrete pipe culvert with concrete intake headwalls, with a grate to carry the water on the south side under the new pavement. At a point about 200 feet from the subway, the water from the north side of the Lincoln Highway is brought across the old highway through an 18-inch pipe culvert. At this point the water from both sides empties into a concrete catch-basin, and from there the water passes through another concrete intake headwall with a grade into an 18-inch reinforced concrete pipe, which carries it to a concrete manhole under the pavement near the south end of the subway, a drop of over 13 feet. The water passes from this manhole through an 18-inch reinforced concrete pipe under the center of the pavement to a second manhole under the pavement near the north side of the subway. From this point the drain passes out from under the pavement and follows along the south side of the new and old highway to the open ditch outlet, using 18-inch vitrified sewer tile with cemented joints; 4 x 4-foot concrete manholes with standard covers were placed at all angles and at intervals of about 500 feet on straightaways.

There were 27,000 cubic yards of excavation in the subway project, most of which was waste. After a vain attempt to reach an agreement with the two interurban railway companies looking toward putting in their approach fill or obtaining permission to waste it on the New York Central right-of-way, it was finally turned over to the contractor, who got the job to worry about. He was able to effect an agreement with the interurban company, and the waste was used in making their approach fill.

The pavement in the entire project is a uniform 8-inch concrete slab 20 feet wide on tangents and has a 2-inch crown. On curves over 3 degrees, the pavement is widened from 20 feet at the ends to 28 feet at the center and is superelevated. On tangents and 3-degree curves, the pavement was finished with a finishing machine, and on curves over 3 degrees the entire width of the pavement was laid at one time, struck off with a heavy straight edge and finished by hand.

A VIEW THROUGH THE NEW CARLISLE GRADE SEPARATION PROJECT, LOOKING NORTH

The first structure is the New York Central and the car in the center of the pavement is under the C.S.B. & N.I. Railway bridge

A 16-gage, 7½-inch corrugated metal strip with ½-inch round deformed tie-bars was placed in the pavement on the center line, and ¾-inch round deformed bars were placed in the center of the pavement 6 inches from each edge. A 1-inch preformed expansion joint was used every 100 feet, with ½-inch round deformed bars placed transversely in the center of the pavement on each side and 4 inches from the joints.

The curve intersections were laid one-half at a time, the two halves being tied together with ½-inch round deformed bars.

The retaining wall is 680 feet long and ranges from 6 to 15 feet high. It is of reinforced concrete of the cantilever type, constructed in 50-foot sections.

The contract for the county's part of this work was awarded to the Highways Improvement Company at a lump sum price of $69,860.79. The contractors at all times showed a desire to use the best materials and do first-class work, and I believe that as far as material and workmanship are concerned it is as good a piece of construction work as can be found anywhere under similar conditions.

ACKNOWLEDGMENT.—From a paper delivered at the Thirteenth Annual Road School, Purdue University, January, 1927.

PHOTOGRAPHS OR CUTS FOR THE ASKING

To help in local efforts for municipal and civic progress, THE AMERICAN CITY is glad to lend photographs, drawings or cuts from current or recent issues or to refer inquirers to sources from which such illustrations can be secured.

How Lucas County Handles Its Road and Traffic Problems

By Charles L. Sawyer
Lucas County Surveyor, Toledo, Ohio

THE administration of a county highway department is a rather complex affair, as there are many problems of an ever changing nature to be solved. Lucas County, encircling the large industrial city of Toledo, is considerably more of a difficult problem than many other counties in Ohio where there is not a diversity of industry or where agriculture is the chief interest and where traffic does not concentrate as it does in the large cities, particularly the industrial cities.

In the strictly rural communities on other than through roads or main market highways, construction and maintenance problems are rather simple, but under increasing traffic, much of it being commercial, the best of handling is necessary in order not to have the costs mount in proportion to the traffic increase.

Our problem is to construct and maintain an adequate system of highways for the increasing traffic at the lowest possible cost. We do not believe in sacrificing money already spent for roads by tearing up existing foundations in order to build new pavement. Rather, we attempt to increase the strength and capacity of the roads in keeping with the demands of traffic, and wherever possible the traffic increase is anticipated.

At present there are in our county system approximately 350 miles of improved highways, divided by type as follows:

	Miles
Penetration macadam	145.43
Surface treated waterbound macadam	135.82
Concrete	55.54
Brick	4.85
Sheet asphalt	8.74
Total	350.38

Within the county there are about 75 miles of state highways which have been constructed and are maintained by the State Highway Department, the County Surveyor usually acting as resident engineer on the state construction work.

Waterbound Macadam

Lucas County is fortunate in that it has easily obtainable within the county splendid road-building stone and slag. We have taken advantage of this, and our road program has very largely been one of macadam.

Extensions of the county highway system have been made by taking over roads from the townships. Many of these are unimproved. Where this is done, our standard practice is to build an 8-inch waterbound macadam foundation in two 4-inch courses, and a 3-inch penetration macadam top. Some of the roads which we have taken over from the township have already been improved with waterbound macadam surfaces. Such roads are given a surface treatment and maintained in that way. Only changing traffic conditions make it necessary to increase the width or strength or both. Most of the old macadam roads were only 14 feet wide. In spite of this narrow width, we have been able to economically maintain them with tar surface treatments. For example, the Little Cedar Point Road was built of waterbound macadam, and the average annual maintenance cost is approximately $275 per mile. This road has certainly paid its way.

Penetration Macadam

Changing traffic conditions brought to the officials of Lucas County as far back as 1910 a realization that improved methods and materials must be used. In that year Lucas County began the construction of Tarvia penetration roads. The first one built was Edgewater Drive, constructed with a waterbound macadam foundation and a 3-inch Tarvia penetration top. The road was but 14 feet wide and was successfully maintained until 1925, when it was widened to 20 feet by extending the macadam foundation and constructing a new 3-inch tarbound penetration top over the whole. This improvement cost $16,286 per mile and is typical of the economies effected by utilizing the old roads, salvaging them as foundations and modernizing the highway at a cost of about one-half of new construction.

Resurfacing

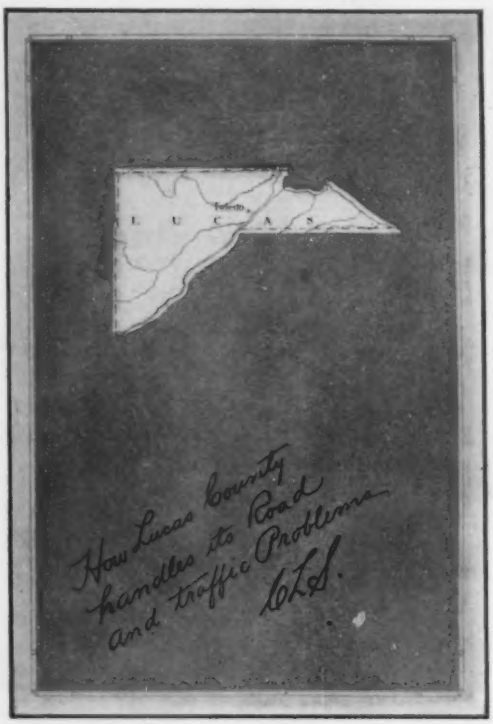
Many of our older roads were not only narrow, but also too light to carry present-day traffic. When the maintenance cost of one of these narrow, thin roads begins to increase rapidly, we investigate conditions and determine whether widening or a new top or both are necessary. If it is decided that the present

width is sufficient to carry the expected traffic for some time to come and the trouble is due to a lack of road strength, we put a new 3-inch penetration macadam top on the road.

The cost of this improvement is about $6,500 per mile for a 14-foot road. Where both widening and increased strength are found necessary, this is done as described above. The progressive widening and strengthening of roads to carry increased traffic keep our capital expenditures low. Nothing is lost.

The old macadam roads built prior to 1910 are still giving splendid service as foundations.

We are able to give the traveling public smooth, safe, dustless, non-skid roads, good every day in the year. They are about as permanent as any can be made, for we continually replace the material worn away and increase the strength to meet the new demands which come up.



COVER OF THE LUCAS COUNTY ANNUAL REPORT

Road Construction

As an example of the penetration macadam roads, we can take the Pickle Road, built in 1914, and the Condon Road, built in 1913. Each of these was built 14 feet wide at an original cost of about $10,000 per mile. The average maintenance cost on the Pickle Road has been $236.50 per mile per year, and on the Condon Road $229.39 per mile per year.

During the past three years we have contracted for road mileage as shown in the following table:

	1926	1925	1924
Penetration macadam	28.91	33.80	19.52
Waterbound macadam	2.00	0	3.03
Concrete	1.65	.57	0
Brick	2.28	1.57	0
Sheet asphalt	1.00	0	0

Of the penetration macadam listed above, 5.10 miles were built with asphalt in 1925 and 2.96 miles were built with asphalt in 1926. The remainder of the penetration macadam was built with tar.

A 3-inch penetration macadam top built under contract will cost about 90 cents per square yard at present. An 8-inch waterbound macadam base built in two layers will cost about $1.10 per square yard.

Concrete built 7 inches thick in the center and 9 inches on the edges with steel reinforcing bars along the edges, costs about $2.50 per square yard.

Brick on a 6-inch concrete base will cost about $4 per square yard.

Crack Filling

In order to keep our concrete roads up to their greatest possible efficiency, it is necessary to pour the cracks which develop in the concrete. For this purpose a refined tar crack filler is used and is applied by our maintenance men as needed.

Surface Treatment

We believe that a very satisfactory maintenance program has been worked out in surface-treating our existing roads. We plan to give our macadam roads a surface treatment with cold refined tar about once every three years. In some instances they must be treated at shorter intervals. Our experience indicates that the best results are obtained with light surface treatments of this material, repeating them when necessary rather than attempting heavier treatments in the hope that longer periods of life may result.

Standard Practice

Our standard practice is to use only 1/6-gallon per square yard and cover the tar with from 12 to 15 pounds of stone chips or granular slag per square yard. In some instances we have found it necessary to use more than 1/6-gallon per square yard of cold refined tar, but we keep the quantity used in any one application down to a minimum. As a result of this careful maintenance, there is no bunching or pushing of surface treatment materials, and our roads in general are smooth-riding and satisfactory highways.

Snow Removal

In order to best serve the public, we have felt that it was necessary to remove snow from the highways. We have made an earnest attempt to give highway service every day in the year.

While snow removal is expensive, we believe the expense is more than justified, as it permits uninterrupted flow of traffic, and business and ordinary pursuits can be carried on with a minimum of inconvenience.

Snow removal also prevents excessive concentration of traffic and the detrimental action of tire chains traveling in ruts on snow-covered or icy roads. The elimination of this bad feature assists in reducing road-surface maintenance costs.

Clearing Right-of-Way

In the interest of safety and appearance, the right-of-way is kept fairly free of brush and weeds. This has a tendency to reduce accidents. Shoulders of roads are also graded to keep them in good condition and assist in maintaining the highways.

Marking and Signing

We are placing name plates and direction signs on all the main roads. Warning signs are being placed at all danger points. We are also marking county lines with suitable signs and placing load-limit signs along the roads where needed. In addition to placing new signs and replacing missing ones, we must repaint the old signs each year.

In addition to signs, we are painting warnings and traffic lanes directly on the pavement surface in some special localities.

Tree Planting

We are not able to go into tree planting as extensively as we would like to, as funds are limited, but we do plant trees along certain sections of the highway. This work will be extended, should funds for this purpose become available.

Equipment

The county has a considerable investment in equipment. Realizing the importance of protecting this investment, the equipment is properly housed and kept in constant repair.

Safety on Highways

We are building easy-riding, durable highways and are exercising every precaution to make them safe for all weather traffic.

Our maintenance and construction methods, using Tarvia and chipped stone, result in a non-skid surface. We are building smooth but not "slick" roads. We also protect the road user by erecting proper guard-rails wherever the conditions seem to require them. During 1926 we painted about 25,000 linear feet of guard-rail, and erected 900 linear feet of wood and 530 linear feet of wire-mesh guard-rail.

Poles and trees on the road shoulders have been painted white so as to make them easily visible. At several dangerous intersections we are alert to the needs of safeguarding traffic and are constantly aiming to eliminate accidents.

Grade Crossings

We have placed warning signs at all dangerous grade crossings. We have completed a splendid improvement on the Liberty Highway by constructing a subway eliminating the necessity of crossing six railway tracks. This improvement has attracted a great deal of favorable comment from the public.

Widening Road Intersections

It is planned to continue the work of increasing the radii on curves at intersections. Some of this work has been done, and the improvement justifies the expenditure, as these intersections are thereby rendered very much safer.

An Unusual Report of a County Surveyor

The paragraphs given on pages 50 and 51, are quoted exactly as they appear in the annual report of the Lucas County Surveyor. The report is neatly bound in light-blue stock printed in a darker blue ink, with the outline of the county cut out of the cover, showing the county with its county-seat and rivers as printed on the flyleaf. In addition to the interesting information abstracted above, each page has a photograph of some notable improvement in the county, with a brief paragraph describing it and a wash-drawing sketch showing traffic using a highway, or else a print of the county map showing the location of the particular project mentioned in the paragraph.

Below are reproduced some of these short paragraphs which give particularly interesting data:

"*Little Cedar Point Road.* One of our old waterbound macadam roads which is still carrying traffic in a satisfactory manner. It was originally built of waterbound macadam 14 feet wide at a cost of $5,905.83 per mile. Since that time it has been maintained by successive surface treatments of cold refined tar. Its average maintenance cost has been $275.20 per mile per year.

"*Otter Creek Road.* Built of waterbound macadam in 1911, after 14 years' service it was widened to 18 feet and strengthened by a new 3-inch Tarvia penetration top. The work was done by our maintenance department by force account at a cost of $23,550 per mile.

"*Cass Road.* Built in 1914 by tarbound penetration macadam 14 feet wide. By 1926 this road was showing signs of distress and it was widened to 20 feet and given a new 3-inch asphalt-bound penetration top. This betterment cost $31,034.50 per mile.

"*Brown Road.* Built of waterbound macadam, 16 feet wide in 1910. In 1921 the road was rebuilt and given a new 3-inch top at a cost of $21,524.25. This waterbound macadam is being maintained with successive surface treatments of Tarvia B. Its average maintenance cost, including the reconstruction in 1921, has been $582.02 per mile per year.

"*Dorr Street.* This road was built in 1912, 1913 and 1914. The old road was 12 and 14 feet wide. In 1925 we reconstructed Dorr Street, using the old road as the foundation. The width was made uniformly 20 feet and a 3-inch tarbound penetration macadam top placed over this width. This improvement cost $30,191.75 per mile."

A Study of Water-Rates

Prepared from a Report by C. C. Habberstad
Municipal Research Specialist, Hoboken Chamber of Commerce

IT is the purpose of this report to try to determine for the city of Hoboken, N. J., the relative burdens for the large and small consumer of water and to recommend an equitable water-rate schedule.

Hoboken Cost High for Large Consumers

Table A shows the cost of water in 25 cities in 25 states. These are all cities about which comparable data were available. The average cost of water in these 25 cities, as compared to the cost of water in Hoboken is shown in Table B. This comparison shows that Hoboken charges consumers using 10,000 cubic feet or less per quarter a smaller rate than the average, and consumers using more than 50,000 cubic feet a larger rate than the average in other cities. A factory using one million cubic feet of water per quarter would pay $356.12 more for it in Hoboken than in the average city where it might locate, or an annual premium of $1,424.48. This is a decided handicap to real estate men interested in securing new industries for Hoboken.

The differences in per cent should be noted. Hoboken charges the small consumer as much as 33⅓ per cent less than the average of other cities, and the large consumer as much as 44.2 per cent more than the average of other cities. Table C shows the highest meter-rates in effect in 25 cities—these being the rates for the small consumer—as compared to the lowest meter-rates for the same cities for the large consumer. The averages as compared to Hoboken are as follows:

	Average 25 Cities	Hoboken	Difference	%
Highest water-rate.....	$1.94	$1.35	$—0.59	—30
Lowest water-rate.....	.74	1.05	+0.31	+42
Per cent lowest to highest	38%	78%		

The Hoboken small consumer pays a rate 30 per cent less than in the average city, and the Hoboken large consumer pays a rate 42 per cent greater than in the average city, which closely approaches the percentages of 33.3 per cent for the minimum charge and 44.2 per cent for the one million cubic feet mentioned above.

A comparison of the average lowest meter rate, 74 cents, with the highest, $1.94, shows that the lowest is only 38 per cent of the highest, where Hoboken's lowest is 78 per cent of its highest. If the minimum charges were used for comparison, the lowest rate in the average city would be 24.7 per cent of the minimum charge, and the lowest Hoboken rate would be 52.5 per cent. These ratios bring out the discrepancies between Hoboken practice and the practice of other cities generally, and show that, speaking in terms of comparative percentages, other cities give their large consumers, as compared to the small consumers, an advantage much greater than Hoboken gives to her large consumers.

The Water-Rate Fable

There once was a city that had one hundred consumers of water, each using exactly 1,000 cubic feet per quarter, for which each paid at the rate of $1 per thousand cubic feet or $1 per quarter. This rate included not only the overhead of running the department and the cost of water, but a profit of 50 cents per thousand cubic feet or for a quarter a total profit of $50 on 100 customers, which was needed to pay off the bonded debt. Then there came to this city a factory using 1,000,000 cubic feet of water per quarter.

Naturally, the factory wanted a reduction in the water-rates, but the city held that the rate should be the same to everyone regardless of quantity. The result was that without additional expense, the city made a profit of $500 or more on its water because of the factory's presence. This pleased the citizens, who soon profited by a reduction in the water-rates.

But the factory located cheaper water elsewhere and moved. Many of the citizens lost jobs, the merchants lost trade, and the city lost taxes. The former water-rates were again put in force, based not only on consumption, but on the cost of each consumer to the city. The citizens then realized that they had no right to profit in the presence of a large consumer; that each should have maintained his share of the cost as before, and that the factory really was entitled to a cheaper rate based on quantity. They set about the task of revising their water-rates.

Logical Method of Fixing Water-Rates

There are two distinct costs to a city in running a water department. The first is the cost of maintaining the water service for all consumers. This includes salaries for the office

TABLE A

COST OF WATER IN TWENTY-FIVE CITIES IN TWENTY-FIVE DIFFERENT STATES

(The following figures are calculated from rate schedules published in THE AMERICAN CITY MAGAZINE for June, July and August, 1926, and are based on signed reports from water-works officials. Many cities have a service charge or meter rental in addition to a scale of meter-rates. Such cities are not included in the following. In cases where cities have rates on a gallon basis, the cubic-foot basis was arrived at by using the ratio of 7½ gallons to one cubic foot.)

City	Quarterly Minimum Charge	5,000 Cu. Ft. per Quarter	10,000 Cu. Ft. per Quarter	50,000 Cu. Ft. per Quarter	100,000 Cu. Ft. per Quarter	1,000,000 Cu. Ft. per Quarter
Helena, Ark.	$3.75	$17.50	$31.50	$90.66	$128.16	$803.16
Los Angeles, Calif.	3.00	6.50	13.00	57.00	102.00	777.00
Bridgeport, Conn.	2.50	6.75	12.75	44.55	74.55	614.55
Wilmington, Del.	2.50	3.30	6.05	28.05	55.55	550.55
Rome, Ga.	3.00	7.50	13.89	53.79	100.66	944.41
Moline, Ill.	2.25	6.66	12.29	57.29	113.54	1,126.04
Indianapolis, Ind.	4.50	7.52	14.52	58.92	98.92	638.92
Hutchinson, Kan.	3.75	8.47	14.92	44.84	74.62	407.75
Lexington, Ky.	1.50	9.00	16.47	63.00	81.75	756.75
Augusta, Me.	3.00	7.50	13.80	50.80	90.80	810.80
Baltimore, Md.	2.00	10.00	15.00	55.00	92.50	767.50
Athol, Mass.	3.00	9.00	18.00	58.00	108.00	1,008.00
Lansing, Mich.	1.95	5.70	10.45	40.57	74.32	644.32
Duluth, Minn.	1.50	7.50	15.00	51.00	91.00	811.00
Newburgh, N. Y.	2.25	9.00	15.90	63.90	113.80	898.75
Henderson, N. C.	4.20	18.40	32.40	105.80	195.80	1,815.80
Akron, Ohio	3.60	8.00	16.00	76.00	140.00	1,220.00
Tulsa, Okla.	2.25	12.35	20.35	69.47	125.72	1,138.22
Bend, Ore.	4.80	6.40	10.40	34.40	64.40	604.40
Erie, Pa.	3.75	5.50	7.00	19.00	34.00	304.00
Charleston, S. C.	3.00	9.25	18.50	82.50	157.50	1,187.50
Chattanooga, Tenn.	2.25	9.37	17.75	73.25	118.75	525.94
Everett, Wash.	6.00	9.39	14.39	35.59	62.09	413.34
Fairmont, W. Va.	3.00	13.37	26.25	69.37	116.24	959.99
Janesville, Wis.	1.75	7.75	15.25	63.25	113.25	393.25
Average	3.00	8.87	16.07	57.84	101.12	804.88
Hoboken	2.00	6.75	13.50	63.50	126.00	1,161.00

These averages are approximately the same as for 295 cities summarized in "Water Works Practice," a manual published by the American Water Works Association.

staff, meter readers, setters and repair men, the cost of maintaining the mains, interest on the bonded debt, the water loss and all other expenses aside from the actual cost of the water. This cost of maintaining the service should be shared by both large and small consumers in the proportion in which they are an expense to the city. Then each would bear his share and one would not be profiting on another.

The cost of the water, which is the second of the two costs to the water department, should be passed on to the consumer according to the quantity used, and a price fixed that would not only include the cost, but would provide a profit so that the bonds of the department might be gradually liquidated. Such a profit is in accordance with good business practice and needs a more practical method for liquidating the debt than would be a proportional charge for the consumers.

This Method Applied to Hoboken

In Hoboken all services are metered. The large consumer using a meter 2 inches or over must own the meter and pay the city the cost of the connection and the installation. All meters 1-inch or smaller are owned and installed by the city at no expense to the consumer except that a minimum charge of $2 a quarter for water is maintained. The small consumer also profits more than the large one from the underregistration of the meters. The practice in Hoboken is to set meters to register 1½ to 2 per cent under the actual amount used. It is evident then, that a small consumer costs the city more than the large consumer and should pay at least a share of the water service cost equal to that paid by the large consumer.

The following disbursements of the water department, based on the Auditor's Report for 1925, should all be included in the cost of maintaining the water service:

Material and supplies	$9,109.38
Insurance	22.50
Truck hire	59.00
Miscellaneous	2,509.41
Office supplies and expense	1,384.32
Salary, office	9,687.50
Salary, meter readers, etc.	10,900 00
Salary, laborers	8,741 50
Repairs	331 99
Refunds	339.65
Interest on bonds	5,630.00
Interest on notes	11,701.67
Meters	1,850.65
Water loss	48,372.21
Total	$110,639.78

Since there are at present 4,886 services in the city, the cost for each consumer for maintaining the water service would be $22.64 per year. This is the value, not including the water cost of the service, that every small consumer

TABLE B

	Average	Hoboken	Difference	Per Cent
Quarterly minimum charge	$3.00	$2.00	$—1.00	—33.3
For 5,000 cubic feet per quarter	8.87	6.75	—2.12	—23.9
" 10,000 " " " "	16.07	13.50	—2.57	—15.9
" 50,000 " " " "	57.84	63.50	+5.66	+9.8
" 100,000 " " " "	101.12	126.00	+24.88	+24.6
" 1 000,000 " " " "	804.88	1,161.00	+356.12	+44.2

TABLE C
HIGHEST METER-RATES COMPARED TO LOWEST METER-RATES IN TWENTY-FIVE CITIES

City	Highest Meter-Rate (when least water is used)	Lowest Meter-Rate (when largest quantity is used)	Per Cent Comparison (low to high meter-rates)
Helena, Ark.	$3.75	$0.75	20
Los Angeles, Calif.	1.30	.75	58
Bridgeport, Conn.	1.35	.60	44
Wilmington, Del.	.75	.55	73
Rome, Ga.	1.50	.94	63
Moline, Ill.	1.50	1.13	75
Indianapolis, Ind.	2.15	.60	28
Hutchinson, Kan.	2.25	.38	17
Lexington, Ky.	1.88	.75	40
Augusta, Me.	1.50	.80	53
Baltimore, Md.	2.00	.75	38
Athol, Mass.	1.80	1.00	56
Lansing, Mich.	1.20	.60	50
Duluth, Minn.	1.50	.80	53
Newburgh, N. Y.	1.50	.75	50
Henderson, N. C.	3.50	1.80	51
Akron, Ohio	1.60	1.20	75
Tulsa, Okla.	2.63	1.13	43
Bend, Ore.	2.50	.60	24
Erie, Pa.	1.50	.30	20
Charleston, S. C.	1.85	.45	24
Chattanooga, Tenn.	1.88	.38	20
Everett, Wash.	2.50	.38	15
Fairmont, W. Va.	3.00	.94	31
Janesville, Wis.	1.50	.20	13
Average	1.94	.74	
Hoboken	1.35	1.05	

in Hoboken is receiving, although under the present rate schedule, he does not pay more than about twelve or fifteen dollars per year, including water. If this cost of maintaining the water service was paid as a fixed charge, the sum received for water would have to take care of only two items—the cost of the water to the department, and the liquidation of the debt.

The cost of the water purchased by the department for 1925 was, not including the water loss, $163,308.53, representing 280,961,000 cubic feet. The funded and surplus debt of the department was $739,855.10 on December 31, 1925. The liquidation of this debt in a fifteen-year period would mean an annual expense of $49,323.67. Fifteen years may seem a short time for this purpose, but no provision has been made for the deterioration of the system, possible extensions, and unforeseen contingencies. The total amount, then, to be made from the sale of 280,961,000 cubic feet of water to cover both the cost of the water and the liquidation of the debt would be $212,632.20, and the rate would be 75.6 cents. At this rate there would be a profit to the city of 17.5 cents on every 1,000 cubic feet of water.

The total revenue to the city from the fixed charge and the water-rate would be $323,271.98, or slightly more than the total revenue during 1925, on which a profit of $52,021.95 was made. If these charges were put into effect, that is, a fixed charge of $5.66 per quarter, plus a rate of 75.6 cents per 1,000 cubic feet, the cost of water in Hoboken would be as follows, as compared to the average of other cities:

	Average	Hoboken	Difference
5,000 cu. ft. per quarter	$8.87	$9.44	$+ 0.57
10,000 " " " "	16.07	13.22	— 2.85
50,000 " " " "	57.84	43.46	—14.38
100,000 " " " "	101.12	81.26	—19.86
1,000,000 " " " "	804.88	761.66	—43.22

The cost of water as compared to Hoboken's present rates would be:

	Present Rate	Suggested Rate	Difference
5,000 cu. ft. per quarter	$6.75	$9.44	$+2.69
10,000 " " " "	13.50	13.22	—0.28
50,000 " " " "	63.50	43.46	—20.04
100,000 " " " "	126.00	81.26	—44.74
1,000,000 " " " "	1,161.00	761.66	—399.34

There are probably ten firms in the city using about one million cubic feet per quarter. These would, if this schedule went into effect, save about $1.597.36 cents each per year.

Suggested Rates Approximated on True Sliding Scale

The practice in most cities is to have a sliding scale of rates supplemented by a schedule of minimum rate or a schedule of fixed charges based on meter sizes. Other cities, of which New York and Jersey City are examples, have complicated systems, often based on almost irrelevant factors, such as the frontage of the property and the number of faucets on the premises. Table D shows the number of rates in various cities, and the quantities at which they apply, and shows that the number of rates varies from 2 to 14 with an average of 5.6.

The argument for a sliding scale of rates is that the buyer should receive a reduction because of quantity. This is a common business practice and is used in business generally to increase sales of large quantities. A city's water department, however, is a public service created to meet the demands of the public and not to create a market for its product. The whole system of sliding scales is erroneous in view of the logical method stated above, based on the fair assumption that each consumer should repay to the city the expense incurred because of his presence, and that the water-rate should be fixed to cover only the cost of the water and the profit desired.

However, if tradition must be adhered to, the suggested rates can be approximated on a sliding scale. Hoboken's schedule of rates, as compared to the average of 25 cities shown in Table D, is as follows:

	Average	Hoboken
First rate	First 4,406 cu. ft.	First 10,000 cu. ft.
Second rate	Next 8,764 " "	Next 100,000 " "
Third rate	" 15,756 " "	" 1,000,000 " "
Fourth rate	" 37,456 " "	Over 1,000,000 " "

This shows that the reductions apply much sooner in other cities than in Hoboken and opens the question: If a sliding scale is to be used, at what point should it slide?

The excellent office system of the Hoboken Water Department was examined carefully and serial cards from 1 to 999 were classified. Based on this classification, consumers range approximately as follows:

No. using minimum rate, 1,481 cu. ft. or less	535
No. using between minimum & 3,000 cu. ft. per quarter	1,200
" " " 3,000 & 5,000 " " " "	800
" " " 5,000 & 10,000 " " " "	554
" " " 10,000 & 50,000 " " " "	1,650
" " " 50,000 & 100,000 " " " "	110
" " over 100,000 " " " "	37
	4,886

This classification is in general substantiated by the number of meters of various sizes as follows:

½-inch	2,137
¾-inch	1,787
1-inch	742
1½-inch	18
2-inch	92
3-inch	38
4-inch	25
6-inch	19
8-inch	6
Total number of meters	4,864

Such a classification indicates that as there are only 147 consumers using over 50,000 cubic feet, there is little need for rate changes above that point. Table D shows the average point for the fourth rate as 37,456 cubic feet, whereas Hoboken's fourth rate goes into effect at over 1,000,000 cubic feet. There are not more than one or two firms in the city that receive any material benefit from this last rate. The above classification and Table D also indicate that the following rate grouping would be as fair as any:

Minimum rate	1,000 cu. ft.
Next "	4,000 " "
" "	10,000 " "
" "	35,000 " "
Over	50,000 " "

The schedule of rates, based on the cost of each consumer to the city and on the amount of revenue needed, would then be approximately as follows:

	Rate per 1,000 cu. ft.
First 1,000 cu. ft. (minimum charge)	$6.00
Next 4,000 " "	1.00
" 10,000 " "	.90
" 35,000 " "	.80
Over 50,000 " "	.75

The attempt to establish such a rate would undoubtedly meet with much opposition from the small consumer, especially because of the high minimum charge of $6 for the first 1,000 cubic feet of water. It might be advisable to reduce this figure, although such a reduction would be made only by an unfair increase for other consumers. A practical rate schedule, distributing the unjust burden as evenly as possible, would be about as follows:

	Rate per 1,000 cu. ft.
First 5,000 cu. ft.	$2.00
Next 10,000 " "	1.00
" 35,000 " "	.85
Over 50,000 " "	.75

Minimum charge on all services, $4.00 per quarter.

The adoption of such a schedule would make water costs compared with other cities as follows:

	Average	Hoboken
For 5,000 cu. ft. per quarter	$8.87	$10.00
" 10,000 " " " "	16.07	20.00
" 50,000 " " " "	57.84	49.75
" 100,000 " " " "	101.12	87.25
" 1,000,000 " " " "	804.88	762.25

TABLE D

NUMBER OF RATES FOR TWENTY-FIVE CITIES AND THE NUMBER OF CUBIC FEET FOR WHICH THEY APPLY

City	First Rate		Second Rate		Third Rate		Fourth Rate		Fifth Rate	Total No. of Rates
Helena, Mont	3,333		6,666		13,333		16,666	Over	40,000	5
Los Angeles, Calif	10,000		40,000		50,000	Over	100,000		.....	4
Bridgeport, Conn	7,000		10,000		10,000		13,000	Over	40,000	5
Wilmington, Del	2,000		3,000	Over	5,000		.....		.....	3
Rome, Ga	6,666		6,666		6,666	Over	20,000		.....	4
Moline, Ill	2,000		2,000	Over	4,000		.....		.....	3
Indianapolis, Ind	700		11,300		18,000		20,000		50,000	6
Hutchinson, Kan	666		666		666		2,000		4,000	14
Lexington, Ky	3,333		3,333		6,666		26,666		26,666	6
Augusta, Me	6,000		9,000		15,000	Over	30,000		.....	4
Baltimore, Md	5,000		45,000	Over	50,000		.....		.....	3
Athol, Mass	10,000	Over	10,000		.....		.....		.....	2
Lansing, Mich	2,000		3,000		5,000		25,000		465,000	6
Duluth, Minn	10,000		10,000	Over	20,000		.....		.....	3
Newburgh, N. Y	2,000		4,666		60,000		266,000	Over	333,000	5
Henderson, N. C	400		3,600		4,000		40,000	Over	12,000	5
Akron, Ohio	20,000		20,000		20,000		20,000	Over	80,000	5
Tulsa, Okla	2,000		2,933		5,066		10,000		13,000	6
Bend, Ore	200		300		1,500		8,000	Over	10,000	5
Erie, Pa	3,333	Over	3,333		.....		.....		.....	2
Charleston, S. C	1,333		2,333		9,333		26,666		93,333	9
Chattanooga, Tenn	6,666		6,666		13,333		33,333		40,000	9
Everett, Wash	1,200		2,300		1,500		1,000		1,000	11
Fairmont, W. Va	3,333		3,333		3,333		3,333		3,333	7
Janesville, Wis	1,000		9,000		40,000		50,000		100,000	7
Average of above	4,406		8,764		15,756		37,456		81,958	5.6
Hoboken	10,000		100,000		1,000,000	Over	1,000,000		.....	-

This would relieve industry of an unjust burden, to the extent indicated in the following comparison of Hoboken's present rates with this proposed schedule:

		Present Rate	Proposed	Difference
For	5,000 cu. ft. per quarter	$6.75	$10.00	$+3.25
"	10,000 " " " "	13.50	20.00	+6.50
"	50,000 " " " "	63.50	49.75	—13.75
"	100,000 " " " "	126.00	87.25	—38.75
"	1,000,000 " "	1,161.00	762.25	—398.75

How Chambers of Commerce and Women's Clubs Can Help Stimulate Birth Registration

IN 35 states now, according to law, the birth of every baby is registered on the official records following reports made by the physician, nurse, midwife, or lay person in attendance on the birth, to the State Registrar. The importance of this registration can be recognized from the fact that a birth certificate is necessary to prove age and citizenship, the right to go to school, the legal right to go to work, the right to an inheritance, to marry, to hold office, or to secure passports for foreign travel.

Dr. William H. Davis, Chief Statistician of Vital Statistics, Bureau of the Census, in a report recently issued by the United States Children's Bureau,* tells of methods for effectively stimulating birth registration. "To obtain good registration," he says, "good registration laws and good enforcement of these laws are essential. Of the states not in the area, only four have unsatisfactory laws. To enforce these laws successfully, however, it is necessary to:

"1. Make plain to everybody that good registration can be accomplished only through a good state registrar and a sufficient number of clerks, so that at all times the central office will know where the weak spots are and will promptly attempt to remedy the defects.

"2. Sell the idea of better registration to the physicians, the women's clubs, the chambers of commerce, the general public, and the mothers themselves.

"3. Let the women's clubs and the chambers of commerce insist on improved enforcement, on prosecutions of physicians or midwives who continuously refuse to report births, and on the monthly publication of compilations by the state registrar of the percentage of deaths of infants under one year of age for whom there were no corresponding birth certificates on file."

An effective way of stimulating the registration, says Dr. Davis, is for the state registrar to send a letter periodically to each physician, giving him the number of births with which he has been credited for the current year, and asking him to verify the number from his personal records. Another way, in use in Pennsylvania, is to give the physician who fails to report within the ten days' legal limit (thereby endangering the child's legal rights) the chance to make affidavit as to the reason for his delay, upon payment of a fee of fifty cents. If he refuses, he is given the alternative of going to court, where a conviction would cost him from $50 to $100. Results are usually prompt. The Pennsylvania State Registrar also frequently has unearthed scores of births of which he knew nothing, by requiring these physicians, at the time of filing such affidavits, to go back over their books and to list for him all unrecorded births they could find.

* This is "Separate No. 5" from the Proceedings of the Third Annual Conference of State Directors in Charge of Local Administration of the Maternity and Infancy Act, 1926—Publication No. 157.

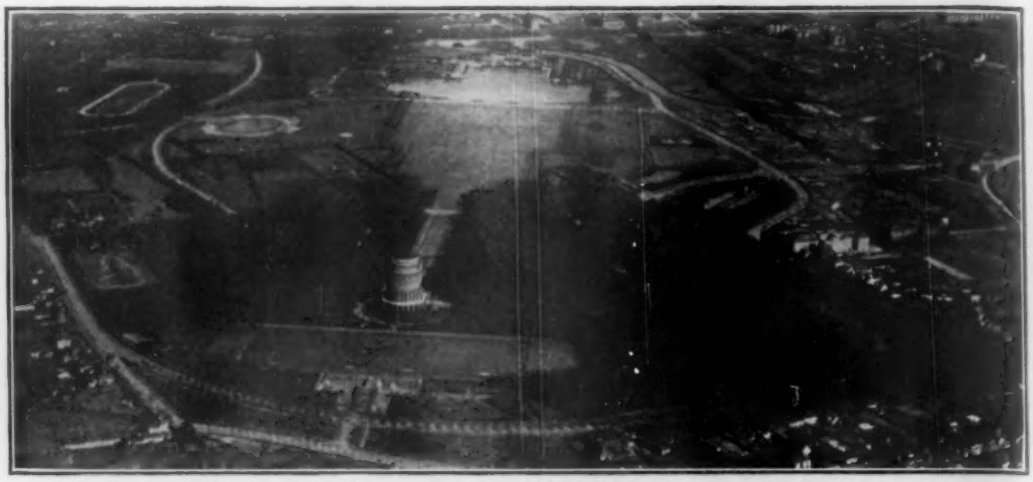
A Librarian Looks Askance at Present Public Library Policy

"DON'T worship the library: fit it to its new job!" This was the sentiment expressed by John Cotton Dana in a paper delivered at the recent American Library Institute meeting at Atlantic City, N. J. The position of the public library on the American scene is good, *but not too good*, the veteran Librarian of the Newark Public Library reminded his fellow-workers. And while the statistics of books lent annually for home reading are impressive, there are other statistics of the public's reading that are more impressive. The same public that annually borrows 240,000,000 books free voluntarily pays more than $1,200,000,000 for 16,000,000,000 copies of newspapers and other periodicals. The combined circulation of five of these journals alone totals over 300,000,000 copies annually. Two million young people pay $70,000,000 per annum (nearly twice the income of all public libraries) for correspondence courses, and at least half of this amount goes to pay for textbooks.

Dr. Dana summarizes his statistics with the startling fact that less than two per cent of the reading done today is of print that has ever been within the walls of public libraries! Nor, he says, can the charge be made that the 98 per cent of non-library reading is chiefly of tabloids and yellow papers, for the standard of the five journals mentioned above, with their combined circulation of 300,000,000 copies per year, he declares, represents equally as high an average as library circulation books.

The hint which he sees for the librarian in all this is that his eyes should be lifted from the "world's best literatures," and fixed earnestly upon the new world of 1927 going by outside the walls behind which he so studiedly shuts himself away. Dr. Dana offers practical suggestions for programs of wider service for the library in a changed and changing world, and, with them, some prophecies. (Incidentally, it was he, who, thirty years ago, had the vision to prophesy the end of the "do not touch the books" public library policy.) In closing, he makes this definite suggestion:

"Let libraries give the newspaper and periodical press of this country the Macedonian cry; tell what they think they can do to make the reading of what is chiefly read—the press of the day—more profitable to those who read, and thus to make the day's and week's and month's outpourings of print still more desirable and still more intently and wisely used than they are now. I believe that that way lies an extension of library influence beyond all our best dreams."



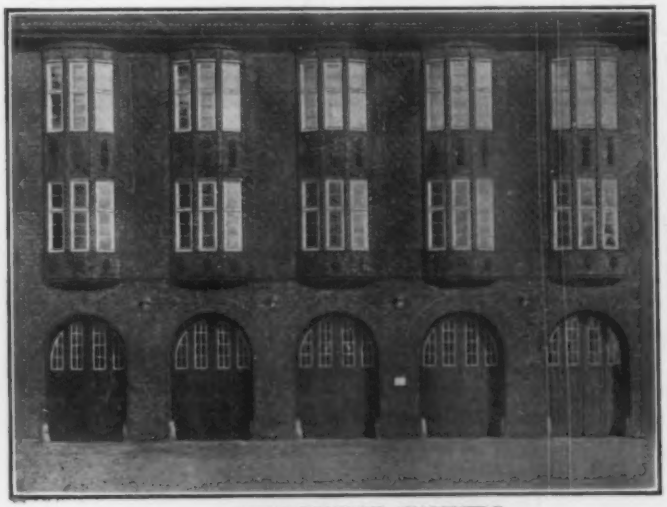
MUNICIPAL PARK AND WATER-WORKS OF HAMBURG—AIRPLANE VIEW FROM BEHIND THE WATER-TOWER

Municipal Park, Water-Works and Recent Public Buildings of Hamburg

By Alfred C. Bossom
Architect, New York and London

HAMBURG has had the foresight to take hold of her municipal problems in time. In her system of parks she has coupled a great meeting hall and auditorium for her poeple, an architecturally treated water-tower, pools, and playground.

The large auditorium, designed, as are all of the other municipal works at the present time, by the brilliant Fritz Schumacher, the City Architect, is treated in a very strong futuristic feeling. Internally, the room which can be used for dining purposes or meetings, has, from a focal point, a magnificent ceiling treatment—great, broad splashes of color that at first glance call the attention of the eye, and once having done so, hold it with a fascination. Then below this is a large series of windows which look across a lake up along a vista cut through a well-wooded parking area to a very cleverly conceived and most decorative water-tower.



FIRE-STATION, HAMBURG

The people of Hamburg see the wheels go round. They understand their water-works, they understand their playgrounds and their municipal meeting places, they know why they are paying their taxes. It is a good example which these people of that free port of northern Germany set before the world, which might with advantage be more followed by many of our American municipalities.

In Germany they have the habit of appointing many officials. Each has his title and becomes very proud of the possession thereof, and it is no sinecure. When a man is appointed

HAMBURG'S PUBLIC MUNICIPAL BATH-HOUSE

a City Architect, he has plenty of work to do—not only does he look after old buildings, but designs new ones; and in this connection, when Hamburg selected Fritz Schumacher to occupy this very honorable position, she picked an artist as well as a trained executive.

Mr. Schumacher had the opportunity, for many years of his life, of living in Chicago, and he is very sympathetically inclined towards all things American. In his municipal work, he has followed with progressive conservatism the recent lines of modern German architecture. The majority of his buildings are of red brick. He has made a particular feature of his roof treatments—long, sweeping lines and repetition of good detail always hold his

FRONT VIEW OF A PUBLIC SCHOOL IN HAMBURG

ONE OF HAMBURG'S POLICE STATIONS

attention, and, in fact, from the various examples here illustrated, this sense of repetition is quite clearly shown. This has the advantage of giving scale in buildings that otherwise might not possess this essential quality, and also of reduction in expense.

Fritz Schumacher expresses the sense of verticality through all of his works, irrespective of the size or height of the operation undertaken. Also realizing that much of Hamburg's best has been destroyed since its great and devastating fire in 1842, to make way for modern improvements, he saw that the reusing of old sections of buildings could be appropriately introduced throughout his work and so, on such buildings as the Hamburg Museum of History, every door, both inside and out, originally reposed in some other historical situation. In his schoolhouses and other modern buildings his design is as forward-looking and broad-gaged as is to be found anywhere.

EDITORIAL NOTE.—For another example of Hamburg architecture—an office building with elevated sidewalks, designed by Fritz Goeger, see THE AMERICAN CITY for January, 1927, page 72.

How Grand Rapids Cuts Down Its Fire Losses

GRAND RAPIDS, MICH., has proved that fires can be prevented and that fire losses can be tremendously reduced if every citizen exercises due care, according to *The Grand Rapids Spectator*, organ of the Grand Rapids Association of Commerce. In a recent article it says:

"In four years an awakened citizenship decreased the annual per capita fire loss from $7.82 to $1.89, as is evident from the following statistics:

Year	Average Population	Total Net Fire Loss	Per Capita Loss
1923.....	150,000	$1,172,676	$7.82
1924.....	155,000	1,077,031	6.95
1925.....	160,000	815,888	5.09
1926.....	165,000	312,825	1.89

With more vigilance, more care, more determination, we can reduce the fire loss of last year, low as it seems to be.

"Grand Rapids now enjoys one of the lowest city fire insurance rates. That rate will be further reduced if our fire losses are kept lower than they were in 1926. Thus there is a double incentive to continue the effective fire prevention campaign that has worked wonders during the past two years.

"In 1925, under the auspices of the Grand Rapids Safety Council, and with the hearty cooperation of Fire Marshal George T. Boughner and Assistant Fire Marshal Fred H. Higgins, a city-wide, continuous fire prevention campaign was started. Fifty-two different groups of business men and factory owners were induced to conduct one-week campaigns. Thus every section of the city, every business place, every home, was reached, and every citizen was impressed with the necessity of exercising care. The campaign was kept up in 1926 with almost astounding results, as the statistics show."

Members of the fire department stenciled the words, "Prevent Fires," on sidewalks, on factories and on numerous other buildings, so that one could hardly go anywhere without being confronted with the sign. The assistant fire marshal delivered many talks against the careless practice of letting rubbish accumulate. The Real Estate Board had 30 large billboard signs posted for one month, advising the public to prevent fires. A shingle company provided its men with carpenters' aprons bearing the words, "Prevent Fires." The electric appliance men and the various utilities cooperated, with signs on both outside and inside of street cars, fire prevention folders enclosed with bills, and otherwise. Just before the holidays the insurance men put out several hundred thousand copies of "Christmas Dont's." The furniture manufacturers enclosed more than 100,000 slips in their pay envelopes, advising their employees to use every care to prevent fires. The men in the metal trades did likewise. The milk dealers put "Prevent Fires" stamps on the stoppers of the bottles in which they delivered milk. Ice cream dealers displayed signs on their delivery wagons and enclosed folders with customers' bills. The printing and allied industries got out thousands of copies of a fire prevention poster; one company in particular issued a two-color illustrated circular letter.

"The fire prevention campaign must be continued—daily, not one week in a year. As soon as there is a let-up in the campaign, the fire losses instantly tend to creep up. And the Grand Rapids Safety Council and the fire department are continuing the good work."

A Study of Refuse Collection and Disposal in Sydney, Australia

Abstract of Report by Rollo K. Newman to the Municipal Council of Sydney

THROUGH the courtesy of the United States Bureau of Foreign and Domestic Commerce, THE AMERICAN CITY has secured a copy of "An Enquiry into City of Sydney Refuse," which covers comprehensively the character of the refuse itself, collection methods, and disposal methods. The report is particularly interesting because of the material appearing in Section 5, which quotes extensively from letters from Pearse, Greeley & Hansen, Chicago; District of Columbia; Savannah and Atlanta, Ga.; Charleston, S. C.; St. Louis, Mo.; Detroit, Mich.; San Francisco, Berkeley, Sacramento, and Los Angeles, Calif.; Boston, Mass.; Portland, Ore.; Philadelphia, Pa.; Worcester, Mass.; Columbus, Ohio; Chicago, Ill.; Cincinnati and Cleveland, Ohio; Milwaukee, Wis.; Des Moines, Iowa; and from THE AMERICAN CITY. These letters were secured in an endeavor to make use of American methods in Sydney.

Physical Composition of the Refuse

The refuse burnt in the Moore Park and Pyrmont destructors in Sydney consists essentially of household refuse, early morning refuse, and trade refuse. According to the report, household refuse constitutes over 60 per cent of the material burnt in the destructors. It is collected in carts of about 2 cubic yards capacity and consists chiefly of garbage, dirt, ashes, tins and paper, weighing about 750 to 800 pounds per cubic yard. Because of the large amount of putrescible matter in this type of refuse, it must be collected at frequent intervals and treated without delay to avoid nuisance and the breeding of flies. The term "early morning refuse" is simply one of convenience coined for the purpose of distinguishing a type of refuse collected in the city between 6:30 and 8:30 A.M. and intermediate in composition between household refuse and trade refuse. In the records this material is included with household refuse, but it is quite different in character and composition, consisting of shop, office, café and hotel waste, etc., and containing on an average 36 per cent of paper. It is collected in the same carts that are used for the collection of household refuse, but the loads are much lighter, since this refuse weighs only 475 to 525 pounds per cubic yard.

Trade refuse consists of waste collected from shops, offices, factories, warehouses, etc., either by municipal or by private carts, and is classified into burnable and non-burnable loads. It is principally with the former type that the following information deals. Special trade refuse, consisting of office books and papers, custom-condemned materials, groceries, etc., which are not included in the general sorting analysis, amounts to 350 tons per annum. The refuse of the municipal fish, fruit and vegetable markets is almost entirely disposed of through the Russel Fodder & By-Products Company, which converts it into fertilizer and poultry food, and it is only when that plant is unable to cope with the amount of refuse, that any is sent to the destructor.

The following table shows the general average analyses of household refuse, early morning refuse, and trade refuse as delivered to the Pyrmont and Moore Park destructors, which total 23,654 tons of household refuse, 6,968 tons of early morning refuse, and 6,604 tons of trade refuse yearly. The analyses are based on 141 loads which were sorted between March and December, 1925:

AVERAGE OF SORTING ANALYSIS

Material	Percentage Occurrence — Average	Maximum
Garbage	46.17	71.43
Paper	25.62	77.99
Dust and ashes	16.43	63.67
Tins	2.08	6.61
Scrap metal	1.34	9.43
Rags	1.48	8.04
Bags	0.60	5.83
White glass	1.42	11.96
Colored glass	0.62	9.90
Crockery	0.60	5.23
Earthenware	0.11	7.69
Leather	0.36	13.44
Rubber	0.13	11.85
Rope and string	0.19	2.54
Linoleum	0.26	13.83
Wood	0.83	19.15
Straw	0.69	35.50
Cane	0.03	1.67
Fur and skins	0.44	10.62
Marble	0.02	1.60
Carpet	0.03	0.86
Fibro-cement	0.01	0.30
Fiber	0.02	0.92
Cotton waste	0.02	1.94
Kapok	0.01	0.25
Feathers	0.11	5.58
Human hair	0.01	0.32
Canvas	0.03	0.78
Mica	0.01	0.17
Plaster	0.08	19.15
Wood shavings	0.21	26.83
Eggs	0.04	5.40
	100.00%	

Differences in Analyses of American Garbage and Sydney Garbage

There is marked difference between the figures for garbage of American cities and the

garbage of Sydney, Australia, particularly with regard to water content and ash. This is due to the fact that the American garbage analyzed was collected separately and not mixed with rubbish or dirt; therefore, it is practically pure food waste. The Sydney garbage analyzed was, on the other hand, collected together with papers, rags, rubbish and street sweepings, with the result that a considerable proportion of the water was absorbed from the garbage by these other materials before sorting and screening. A certain amount of grease must also be removed from the garbage by the paper, since dirty paper from household refuse usually contains 2.22 per cent of grease in addition to 36.88 per cent of water.

The admixture of street sweepings with garbage in the collecting carts resulted in the adherence of the wet food waste to considerable quantities of dirt and dust, which were not completely removed by screening and consequently remained to increase the figures quoted for ash.

COMPARISON OF SYDNEY GARBAGE WITH THAT OF CERTAIN AMERICAN CITIES

	New York	Washington	Cincinnati	Milwaukee	Cleveland	Columbus	Dayton	Los Angeles	Chicago	Sydney
Water	71.40	73.80	76.60	70.60	75.60	76.40	80.60	....	....	44.71
Combustible	23.40	22.50	19.70	21.70	21.20	20.30	16.80	....	....	29.65
Ash	5.20	3.60	3.70	7.70	3.20	3.30	2.60	....	....	25.64
Nitrogen	0.92	0.71	0.64	0.35	0.64	0.59	0.51	3.05	2.65	0.74
Potash	0.36	0.28	0.28	....	0.30	0.25	0.20	1.22	0.85	0.11
Phosphoric acid	0.48	0.39	0.29	0.51	0.24	0.22	0.19	1.96	3.81	0.63
Ether extract	5.49	5.12	4.02	1.93	3.85	3.96	3.83	1.71	2.04	2.84
Calorific value	B.T.U. 1,926	B.T.U	B.T.U. 2,000	....	B.T.U. 2,057	B.T.U. 1,994	B.T.U. 1,712	....	....	B.T.U. 3,007
	2,398	2,310	....	....				....	....	

The comparatively low water content of Sydney garbage is responsible for the comparatively high calorific value. It is probable that in the event of the establishment of a separate collection system in Sydney, the garbage would closely resemble that of American cities and have a water content of approximately 75 per cent, combustible 20 per cent, ash 5 per cent, and grease 3.5 to 4.5 per cent.

Suitability of Various Disposal Methods to Sydney Conditions

Dumping on Land.—This is a quite sanitary method for the disposal of non-putrescible refuse, provided that care is taken in keeping the dump covered with soil. The success of such a method depends largely on the availability of dumping grounds reasonably close to the collecting area. The fine screenings of Sydney refuse should be disposed of either by this method or by dumping at sea, depending upon the relative cheapness of the two.

Dumping at Sea.—This method is cheap and, in addition to being used for heavy, useless materials, might be used for the disposal of screenings as an alternative to dumping on land.

Crushing or Pulverization.—This method would not be suitable to Sydney conditions. If the refuse were ground in the wet condition, the greatest difficulty would be experienced in trucking to farmers quickly enough to avoid nuisance from odor, and, furthermore, if a ready market were not always available, the material could not be stored without creating nuisance. While it is probably true that the ground refuse is without objectionable odor immediately after grinding, it would soon begin to decompose. This difficulty could be overcome by drying, when a stable product would be obtained. In addition, preliminary drying would eliminate freight charges on the 40 per cent of water in the materials. The price available, however, would not warrant the expense of drying, and even the dry ground product would not have a ready sale, as it is poor in fertilizer constituents and, on account of the relatively large amount of paper and rubbish, is unattractive in appearance. In countries where intensive cultivation is practiced, the humus-producing qualities of the garbage are sufficient to create a market for it, but, generally speaking, the Australian farmer does not need such material to make humus.

Reduction.—The reduction process can be used only for the treatment of pure garbage, cleanly separated from tins, rubbish, etc., and consequently would not be used in Sydney unless separate collection systems were introduced. Even then it is by no means certain that a reduction plant could be operated more economically than a destructor, since, although revenue is received from the sale of by-products of the former, the initial cost of the plant and the rate of depreciation are high and more skilled labor is required for its operation. In addition, it must be borne in mind that the cost of the solvent necessary for the extraction of the grease would be much higher in Australia than in America, where most of the reduction plants are found. With a reduction process there is always danger of creating nuisance, and the taking of precautionary measures results in increased expense.

Incineration.—It is believed that this method alone should not be used in Sydney when there

is a ready market for many salable portions of the refuse.

Separation-Incineration Method.—This is recommended as the best method for Sidney. It is evident that very considerable reduction in the present cost of disposal in Sydney can be effected by screening the refuse, sorting out paper, metal, glass and bags, and burning the remainder in a modern destructor. The specifications for the destructor should provide, among other things, that it burn, without the use of additional fuel, mixed refuse containing not over 900 pounds of water per ton and not less than 800 pounds of combustibles.

Hands That Hold the Purse-Strings—Observations by New York's First Woman Alderman

STRETCHING the family income to make it go 'round is a feminine art so ancient that, in the working out of modern domestic economy, woman's hold on the family purse-strings goes unquestioned. Since woman's interest has broadened, then, from domestic to municipal affairs, it is not strange if there has been an instinctive carry-over into the wider fields, of the age-long facility for "cutting the largest number of cookies out of the dough." Mrs. Ruth Pratt, New York City's first woman alderman, has an article in the May issue of *Harper's* entitled "Men Are Bad Housekeepers"—an article which leaves the reader wondering whether in the municipal housekeeping of the future there might not advisedly be a new reign of the ancient domestic order: man proposes; woman disposes.

Mrs. Pratt gives a revealing glimpse of aldermanic sessions, but being so completely in the minority on the Board of Aldermen both as to sex and politics (being one of the three Republicans represented) she is practically without power except to appraise and criticise, which she has proceeded to do:

"The Board of Aldermen has formally approved a budget this year of $474,893,000. My feeling when it did so was that ninety per cent of the members had not the slightest conception of what it was all about. . . . Why worry? It all seemed, this lack of interest, pretty disgraceful to me. The budget is about the only excuse for the existence of the Board. We *have* the power to slash it. But if we accept the Board of Estimate as an 'inspired body' that can do no wrong, we ought to support a bill legislating ourselves out of office. We're pretty expensive when we do nothing except draw five hundred thousand a year from the city!"

Mrs. Pratt believes that a hundred million dollars of the budget should have challenged keen questioning, and that fifty million dollars of expenditures might have been cut from it without in any way retarding municipal progress. In her bill of particulars one hears the tones of the thrifty foremother summoning Johnny to appear and show cause why a patch on the elbow of his last year's coat will not serve instead of a new suit. Her first expressions of shock at the aldermanic acceptance, brought her attention in the press, she relates, which aldermen do not generally receive; and this was followed by a storm of letters from women all over the country, requesting her budget analyses to be used as the basis of club papers. She was hailed as having discovered woman's real sphere of usefulness in politics—to curb extravagance. But in closing her article, Mrs. Pratt doubts if women would make wiser spenders of the city's money than have men: they might at first, but she sees them falling victim to the machine of party politics and becoming a tribe of "yes women" similar to the present tribe of "yes men" obedient to the will of politicians higher up. It may be, however, that the minority member is a little pessimistic and that time and more woman representation on aldermanic boards will tell a different story. It may be that she forgets, in the midst of the political maelstrom, the inherited strength of the feminine wrist muscles that come into play in the clutching of purse-strings.

Pennsylvania Takes Important Forward Step in Housing Legislation

THE recent approval by Governor Fisher of the Housing Enabling Act of the 1927 Legislature, sponsored by the Pennsylvania Housing and Town Planning Association, gives to Pennsylvania its first state-wide housing legislation and advances the state to the first rank among those attempting to safeguard the home with proper legal protection. This act is based on the principle of Home Rule and is the outcome of recommendations of various state officials and civic organizations made to the Legislature after several years of study and investigation into housing conditions in the state.

Under special acts of the Legislature certain regulatory measures had previously been imposed by a few cities, but only 20 of the 42 cities in the commonwealth and very few of the 1,000 boroughs had adopted any kind of building ordinance or housing regulation. The new act provides:

"That, in addition to other remedies provided by law and in order to promote the public health, safety, morals and the general welfare, all cities, incorporated towns, boroughs and townships of the first class in this commonwealth are hereby authorized and empowered to enact and enforce suitable ordinances to govern and regulate the construction, alteration, repairs, occupation, maintenance, sanitation, lighting, ventilation, water-supply, toilet facilities, drainage, use and inspection of all buildings constructed, erected, altered, designed or used in whole or in part for human habitation and of the sanitation and inspection of land appurtenant thereto; and the said ordinances may provide proper penalties not exceeding $500 for violations of their provisions."

In keeping with the provisions of this law, the Pennsylvania Housing and Town Planning Association is now preparing a Model Housing Ordinance to submit to the various cities and boroughs for their adoption.

Can't You Afford to Let Us Have Places to Play In?

Can America Afford an Adequate System of Playgrounds?

By Henry S. Curtis

Director of Hygiene and Physical Education for the State of Missouri

AN inquiry as to whether America can afford an adequate system of playgrounds, at once raises the question as to what an adequate playground system would be. On this the evidence is now becoming clear, and we can answer with some assurance.

The first unit in such a system is the home. Wherever there are little children, there should be a playroom, and a playground in the yard. The latter should contain at least a sand-bin and one or more swings, with a slide and a wading pool if they can be afforded.

Block Playgrounds in Tenement Sections

In tenement sections, where there are no private yards, a playground should be furnished in the center of every block. It is not safe for little children to cross the streets by themselves. The only suitable place that can be provided for them is in the interior court. The tenement house law passed in Berlin about thirty years ago required such facilities in all tenement areas. Where an entire block is constructed by a single company or individual, it becomes possible to furnish a fairly adequate playground for the children within this control area. Where the block is of uniform height, especially if it is heated as a unit, it is possible also to have a continuous playground covering the entire roof. If in these play areas are placed sand-bins, swings, see-saws, slides, and areas for general games, there is in the roof and court together a playground as large as the block and about what little children require. There are often enough of them to use the full time of a kindergarten teacher. These little children have no other opportunity for outdoor play and their health and physical development are dependent upon their getting much fresh air and exercise. They are in the period of life when nearly all their interests are motor interests. Block playgrounds are the most important of all playgrounds in congested regions. There should be a law requiring them wherever possible.

Community Playgrounds—Preferably at the Schools

A third type of playground may be called a community playground. It should be furnished for every thousand children of school age and should be at least ten acres in extent. Its best location is at the school. Several forces are now working in this direction. Our school surveyors are saying that the old four- or eight-room school cannot be economically administered, that it cannot afford a gymnasium, a swimming pool, domestic economy, manual training, music, art, and many other things which go to make a modern school. It is expensive to heat and clean. A supervising principal cannot be afforded for so small a number of teachers and pupils. They are saying that in the larger cities no school should be built for less than a thousand pupils. There is now going on in many of our cities a consolidation of the smaller schools into larger units with more adequate grounds. In many cases, however, it is impossible to secure an adequate ground at the school.

There are twenty-three million school children in America, of whom about eight millions are attending one-room rural schools. Of the remaining fifteen millions, about five millions are reached by existing playgrounds. This would leave ten million children to be provided for. A playground for each thousand children would require ten thousand playgrounds. Ten acres for each ground would mean a hundred thousand acres. If we pay for these grounds $3,000 an acre and add another $1,000 an acre for grading and improvements, the cost would be $40,000 for each playground, or $400,000,000 for the country as a whole. This would not meet adequately the

How Stingy Must We Be Towards the Children of America?

The thought of this short article is not that we should straightway appropriate eight hundred millions of dollars to provide adequate recreation facilities in every community, but that it is quite possible for us to do so, and that we should not be quite so stingy in our providing, realizing that America can afford to furnish all that its children need.

needs of the children in the most congested sections of our great cities, where practically all the ground has been built upon, but it would meet fairly well the needs of the country as a whole.

Swimming Pools and Tennis Courts

If we put into this playground or provide otherwise a swimming pool for each thousand children at a cost of $10,000, this would mean for the country another $100,000,000. If we add to this a tennis court for each hundred children, or ten for each playground, we should have a hundred thousand tennis courts. If these cost on an average $300 apiece, this would be $30,000,000, or a grand total of $530,000,000 for city playgrounds, exclusive of the home and tenement playgrounds which, for the present, must be privately provided.

In many sections adequate playgrounds could not be furnished in just this form. Baseball, swimming and tennis would have to be provided in larger parks, but the cost should not be increased thereby.

Summer Camps

The fourth element in this system is the summer camp. Children do not stay on city playgrounds for more than one or two hours a day, leaving eight or ten hours for the streets and idleness. The city is not a good place for a child with nothing to do. It is desirable for him to develop the independence which comes from being away from his parents at times and having to rely on himself. Parents also need at times relief from their children.

The last yearbook of the Playground and Recreation Association of America states that 200 municipal camps are now being maintained by American cities. Every city should have such a camp. When we consider the number of private camps, Boy and Girl Scout camps, Camp Fire Girls, Y.M.C.A. and Y.W.C.A. camps, we should realize that the time for public provision for camping is here. We could probably furnish to each thousand children a camp of 50 acres for $100 an acre, or $5,000 for each camp. In many places such sites could be secured without cost in the national forests or in the state or national parks. At the rate of $5,000 for each 1,000 children, $50,000,000 would be required to provide camps for 10,000,000 children throughout the United States.

County, State and National Parks

The best solution of the camp problem would undoubtedly be a reasonably adequate county park in each county, which might be a refuge for all the native flowers and shrubs and trees as well as game. This would be also a public forest to replenish depleted timber supplies, a playground for every rural community, and an attractive place for city camps and afternoon auto trips.

Add to this city and county system a series of state parks covering each state at a cost of a hundred millions more, and throw in a hundred millions for additional national parks, and we should have a reasonably adequate system of public recreation for both children and adults, costing about $800,000,000. There are in this country about 117,000,000 people. This would represent a little less than $7 per capita.

Per Capita Costs

The wealth of the United States has been variously estimated by different authorities in the last two or three years at from $320,000,000,000 to $350,000,000,000, with a per capita wealth from $3,000 to $3,200. Taking $7 out of $3,000 does not make a very big hole. When we consider that this is for better health, efficiency, longevity and morals, and that it will probably add to the value of the property as much as it will cost, the large sum suggested does not seem prohibitive.

According to statistics recently gathered, we have spent during the last two decades something more than $775,000,000 on golf courses, which are probably reaching less than one per cent of our population. If we can afford to spend so much on the play of a few of our mature men and women to whom play is more or less incidental, we can afford to spend considerable on the play of fifteen millions of children, to whom play is the breath of life.

Our national income in 1920 was estimated at $70,000,000,000, approximately $600 per capita. This system would probably cost about $120,000,000 a year, six times as much as we are now paying, to maintain. This would be approximately $1 per capita. Again, $1 taken out of $600 is scarcely noticeable and does not seem prohibitive when we consider that we are spending close to one billion dollars a year, or eight times as much, on cigarettes; and more than two billion dollars a year on tobacco, or sixteen times as much; and, that according to the estimate of Secretary Houston, we were spending in 1920 $140 per capita on useless luxuries. It would seem that the country might well afford to take $1 from these expenditures each year in order to provide the facilities that are essential to the health and welfare of all children and to a considerable extent of all adults.

The fall of every country has been preceded

by a period of just such luxury as the United States now seems launched upon; by a time when they built great stadia to watch other people play and when they left the serious work of life to servants or mercenaries. America can afford to spend any amount of money that is necessary to prevent the coming of such a time. The amount which has been suggested as reasonably adequate is a mere trifle for the country as a whole.

The Permanence of Playgrounds

Playgrounds are on a different basis from most other educational facilities. A school building may burn up, blow down or be shaken down by an earthquake. Whether it is or not, it becomes obsolete from depreciation of the structure or from changing ideals of education. The playground, however, cannot blow down or burn up or be shaken to pieces by an earthquake, and so long as children have feet and legs, a place to play in will not become unnecessary. The playground once established is established forever, and the ones of this year are added to those of the year before.

A Successful Bathing Beach in a Small Town

By Bernice Millerke

IT was chiefly due to the efforts of one far-sighted woman, Mrs. Gina Smith Campbell, that today Dell Rapids, S. Dak., with a population of only 1,700, is said to have one of the best bathing beaches in the state, regardless of the fact that it is situated on the banks of the Sioux River, which is not more than 125 feet wide. Her insistence that the town provide a protected and safe place for children to swim in, after several drownings had occurred, later resulted in an adequate bathing-beach and park.

The beach was definitely started in 1914, with few facilities. The site chosen embraced twenty-one acres of pasture land in the south part of town, which lies along the river bank. Because the west end of this land contained a number of trees, it was decided to make it into a park for play and picnicking.

ABOVE—A WARM DAY AT THE BATHING BEACH, DELL RAPIDS, S. DAK.

AT LEFT — BAND-STAND, REFRESHMENT BOOTH, AND PAVILION IN THE PARK

The first summer, bath-houses were built—one for women and one for men. The soil surrounding them, which is not sandy, was cleared of grass and brush, and covered with sand from one of the town's quarries. Every year a fresh load is added to the bank and also to the river, since the latter has a mud bottom.

By gradual development the beach and park have attained a popularity which brings several thousand people on Sundays and holidays to partake of the sport they offer. Today the park contains a dance pavilion where public dances are held every Friday night; a bandstand; a refreshment booth which is open every day during the summer; benches, tables, and gas stoves for picnickers; swings, teeter-totters, and a sand-pile for the children. A playground supervisor serves from June until September.

Sanded walks and colorful flower-beds lead the way from the park to the beach, a distance of about three blocks. North of the walks leading to the beach are several well-kept tennis courts.

The beach still has its original bath-houses. The one for women, however, has been enlarged, and a new house built for those who wish to rent private lockers for the summer. A small refreshment stand has been added for Sunday and holiday needs.

A pier extends out into the water from each of the two main bath-houses. Joining the two piers is a heavy wire cable kept afloat by large wooden spools. The water here is about five feet deep, and those who cannot swim seldom venture beyond the bounds of the cable.

Near the men's bath-houses is a slide which extends fifteen feet out into the water. Several rafts and a diving-tower with a number of spring-boards afford ample opportunity for diving. A miniature lighthouse on the shore completes the setting.

The beach is under the supervision of a hired life-guard during the three summer months. He is on duty from nine in the morning until nine at night, and during the morning and afternoon he gives free swimming lessons to all who wish to join his organized classes. He has as assistants two boys who have successfully passed the tests for life-guards. A life-boat and life-savers are convenient. There has never been a drowning at the beach since its establishment. Even mothers with small boys have ceased to worry over their safety while in swimming.

The expense of maintaining the beach and park is defrayed by the money obtained from the dances, refreshment stands, rental of lockers, towels, and suits, and an annual water carnival.

The most recent addition is the "Nancy Anne," a motor-boat which carries people a mile up the river and back for the nominal sum of twenty-five cents.

New Methods Effect Great Economies in School Dental Work

RECENT advances in dental hygiene have made possible a service to school children by boards of education, heretofore deemed financially prohibitive in most cities. Dr. James Frederick Rogers, Chief of the Division of Physical Education and School Hygiene of the U. S. Bureau of Education, tells of this notable progress in a recent statement, published in the *United States Daily*:

"The most important single problem in the health of the school child is rotting teeth, though the very existence of such a condition is only indicative of causes back of dental disease which need to be dealt with. The dental problem has hitherto been such an overwhelming one from all angles that nowhere has it been fully coped with, and all preventive measures have failed to save a large proportion of teeth from extraction or troublesome root fillings.

"The announcement from the Forsyth Dental Infirmary of the results of its experiment in the solving of this problem marks the most important contribution to school hygiene of the past years. Their method of attack is the result of search by many investigators pointing to faulty formation of teeth as the essential condition for their decay. The method of meeting the problem is, in brief, to examine the teeth of children, of both the first and second set, soon after their eruption, to find the faults of enameling (the pits and crevices) in which decay begins and by proper treatment to render these portions of the teeth resistant to the inroads of bacteria. It is claimed that 'around 90 per cent of the decay which was believed to be unavoidable, and which we have been trying to prevent by tooth brushing, is easily controlled by this plan of early treatment * * *. We have available an exceedingly efficient method, if we will only adopt it and use the necessary educational plans to bring it before the public.'

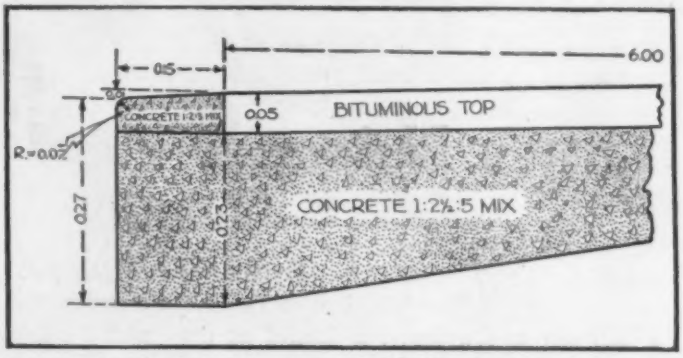
"By the old method of filling cavities, devitalizing pulps, removing decayed molars, etc., it was estimated that for the city of Boston over 1,000 full-time dentists would be needed. Although 90 per cent of children have faults of enamel (as many have dental decay sooner or later), by the new methods the school work for a city of this size can be accomplished by 16 dentists, or about 1 for 4,500 children. Thus an impossible task has been made possible, along with far better results for the welfare of the child than was dreamed.

"Meanwhile the cause of the imperfect development of teeth (and hence of decay) in faulty prenatal and later nutrition is receiving attention, and it is not impossible that we are on the way to eliminate our most common disease and to lessen the need of the dentists, now so essential, if expensive, an agent in patching up the results of our ignorance."

The New Seven-Hundred-Mile Central Highway in Cuba

Paved Road to Extend Practically Throughout the Length of the Island

WHAT is probably the longest paved road ever put under contract at one time is now being constructed in Cuba. This Central Highway, which runs from Pinar del Rio to Santiago, a distance of 705.6 miles, lacks about 200 miles of the total length of the island. The contract price for the work is $75,870,000. This gives a cost of $107,465 per mile, which includes grading, drainage, bridges and a large amount of incidental work. The road is to be paved its full width of 22.66 feet, with 5.64-foot shoulders. About one-sixth of the road is to be granite block on concrete base, and the remainder Warrenite-Bitulithic on concrete base. All bridges and structures are of steel and concrete.



PART SECTION OF BITUMINOUS PAVEMENT ON CONCRETE BASE BEING BUILT IN CUBA

The bids for the work were on a unit price basis on estimates of quantities made by the Cuban engineers. It is provided in the contract that should the cost of labor or the cement, asphalt and granite block be more than 5 per cent less than the estimate of cost, 80 per cent of the excess will be rebated to the Government; and, conversely, if the cost is more than 5 per cent in excess of the unit bids, 80 per cent of the excess will be added to the contract price.

The work is to be pushed in the six provinces of Cuba at the same time and it was required that the work be started within thirty days of the signing of the contract, which was done on February 19, 1927.

Design

The total length of the highway is divided into thirty-two sections of from thirty to thirty-five kilometers each. The standard road section is shown in the illustration. It is the present intention to use granite block on the dense traf-

SECTION OF OLD MACADAM ROAD ON CENTRAL HIGHWAY IN PINAR DEL RIO PROVINCE WHICH WILL BE RECONSTRUCTED WITH BITUMINOUS SURFACE

fic sections near the important cities. Both the bituminous surface and the granite block are to be laid on a 1:2½:5 portland cement concrete base 6 inches thick in the center and 9 inches on the side. Because of the greater cost of granite block, the extent of its use will be reduced from the amount contemplated in the specifications.

Standard bridge designs have been adopted. For spans of 100 feet or under, reinforced concrete will be used, while bridges greater than 100-foot span wil be of steel from standard designs prepared by J. A. L. Waddell, consulting engineer of the Cuban Government.

The work will be done by the Warren Brothers Company of Boston and by the Associated Cuban Contractors, Inc. The engineers of the Cuban Government are M. A. Coroalles and E. Duque Estrada, and A. Ruiz Williams is engineer for Warren Brothers Company.

Sewer Maintenance and Catch-Basin Cleaning

By H. W. Phillips

Superintendent of Public Construction, Davenport, Iowa

THE city of Davenport is located on the north bank of the Mississippi River a few miles above St. Louis. The topography of the city is a general slope away from the river to the bluffs north of it. Our streets run east and west and north and south. Consequently, our sanitary system of sewers is somewhat simplified in that we are not compelled as yet to have any intercepting sewer system or disposal plant. We have outfall sewers that take the sewage directly out into the main current of the Mississippi and thus cause very little disturbance along the shores. Perhaps in the future we may be compelled to take care of our sewage in other ways. The sizes of our individual mains are not increased greatly and except in cases where storm water is allowed to enter the sanitary system, we have practically no trouble from stoppage of the sewers due to debris from the streets.

Quite a number of our storm-drain inlets are tapped into the sanitary system scattered over the city, but these are usually tapped in with a much smaller pipe than the sewer mains, so that there is very little trouble from overloading. For the most part, our sanitary sewer and storm-water systems are separate. The storm-water system has given us very little trouble. On account of the topography of the city, these storm-water systems have been located almost entirely in the natural watercourses, and thus in many cases are under quite high fill where streets have been filled in across the various watercourses. In the future we may experience quite a bit of difficulty due to the giving-way of some of the old storm drains under these fills, but as yet we have had few experiences of this kind.

Break of Sewer in Fill

We had an interesting experience recently with a manhole located on the storm drain in one of these fills. The manhole, evidently, had not been built in a proper manner and the sewer was carrying all the weight of the manhole and the fill. Consequently, it crushed under the weight and impounded quite a lake of water on the north side of the fill. This lake was increased by the local water company's releasing the water from a reservoir on top of the hill, adding materially to the natural flow.

The water rose on the north side of the fill to a depth of about 20 feet. As the break occurred close to the north side of the fill, it was impossible to dig down to the obstruction, so we borrowed a pipe pusher from the local gas company and pushed a 4-inch pipe through the inside of the pipe from the lower side of the fill, and luckily we succeeded in getting the pipe through without its being clogged. After the water started to flow through this pipe, it was clogged slightly, but by pushing a 2-inch pipe through the 4-inch pipe, we dislodged the obstruction, and the lake was emptied in a few days, thus permitting us to dig down to the obstruction and repair it.

Sewer Connections

Our problems in connection with the sanitary system are mainly through stoppages due to roots, poor connections, and breakages of the mains. We had one experience with sand filtering in through poor connections and filling a main up to such an extent that it was necessary to relay it.

We have had frequent trouble in the last few years by the stoppage of sewers caused by poor connections. We have been very careful about this since that time, but in the older part of the system where connections were made previous to our time, we have found all kinds of connections made to the sewers. Some were

simply holes drilled in the pipe in almost any manner and the tap made, the pipe projecting inside the main sewer to such an extent as to cause clogging of the sewer. There have been extreme cases where a tap from one side of the street has been carried clear over to the opposite side of the sewer in a half-circle bend and tapped in on the wrong side for no apparent reason, unless to make a harder job and more pipe for the plumber.

Most of our troubles due to poor connections have been simply because the connections were poorly made and not watertight. They permitted the soil to filter in and thus cause cave-ins under pavement and in streets not paved at all. Poor joints in the main sewers have also caused us some trouble with cave-ins. During the last few years, we have carefully inspected all new construction, secured tight joints and good, clean, tight connections, so that no trouble has been experienced during this time with cave-ins on new sewers.

The total length of sanitary mains in Davenport is about 119 miles. The total length of storm-sewer drains is about 21 miles. Our last year's expenditures, including salaries of officials devoted somewhat to other duties, were $17,130, or a cost of $123 per mile per year. This item includes all repairs, extensions to catch-basins, building of manholes that were necessary, increasing the height of manholes that were already built, repairs to breaks, and also $2,100 for the cleaning of catch-basins alone.

New York's New Theater Padlock and Red Light Injunction Laws

CERTAIN alarmists and some others who have been deploring the crime and degeneracy they have seen rampant, have more lately begun to deplore what they view as a dawning reign of blue-law tyranny. One of the most portentous signs of this they see in the Wales Act, New York City's new "Theater Padlock Law," so-called. This legislation has been so generally hailed as "arbitrary, unjustifiable, and tyrannous," and as working such gross injustice to theater-owners, among others, that James Garrett Wallace, Assistant District Attorney of New York City, has made public a statement of the genesis and intent of the law from the point of view of its authors and proponents. In a recent issue of the *New York Times*, he says:

"The law simply extends some of the power the License Commissioner always had over all other licenses to the theatrical license and remedies an anomalous situation which hitherto existed. . . . . Controlling a business by licensing it and regulating it is an extension of the police power of the state. . . . . It certainly was an extraordinary situation that existed in the case of theaters before the passage of the so-called padlock bill. . . . . the licensing authority was powerless to control the license."

Formerly, it is pointed out, there were only three counts on which theatrical licenses could be revoked, none of them bearing even indirectly upon the production of indecent or obscene plays. The Wales Law is the remedy for this situation. But it provides (under Section 1140a) for trial in a court of record and a conviction before licensing authorities can even consider the question of revoking the theater's license. Even if there is a conviction, revocation of the license is not mandatory. The licensor may, at his discretion, revoke the license for a day or for a year. He may, and in all probability he will (in Mr. Wallace's opinion), hold a public hearing to ascertain whether or not the owner, lessee, or manager was responsible; nor does there appear to the bill's proponent reason to anticipate that the license commissioner will have occasion to abuse his power, or that the mayor, whose appointee the license commissioner is, would permit such abuse.

Under the new law not only indecent and obscene plays are condemned, but any indecent or obscene part of any play; and plays based upon themes of sex degeneracy or sex perversion are forbidden. It is held that if a play contains any matter that tends to corrupt, the play corrupts; and that if the theme of the play is improper, the play is improper, regardless of the manner of presentation.

The Wales Law is undoubtedly one of the strongest symptoms of a general tightening-up in the enforcement of law and order. There have been others in New York recently through the efforts of the New York State Crime Commission and the Baumes Law which it sponsors; and in the Red Light Injunction Act (modeled after the Iowa Red Light Injunction Law, already copied by most of the states in the Union). This bill, which gives large powers to courts of equity to abate immoral houses as public nuisances and padlock the same for twelve months, was presented at the 1927 session of the New York State Legislature by the New York Civic League, and was passed without the alteration of a single word.

Even those who "view with alarm" the Wales Law and other symptoms of the pendulum swing back in the direction of Puritanism have to confess that the old restraints dictated by public opinion, home, church, and the press have lost much of their power, and that ultimate protest against the general abandonment of old-time traditions and the letting-down of moral responsibility, must come from quarters in which effective power still resides. We have thus governmental response to a wave of experimental public indecency!

Some see grave dangers in a police censorship over the drama and the other arts: in the Wales Law, and in the banning of "Elmer Gantry" and other "best sellers" in Boston, recently, for instance. But even those who want for us the utmost freedom of individual and artistic self-expression will perhaps be willing to confess that the time had arrived when something had to be done to curb the rapacious interests that have recently devoted themselves so assiduously to exploiting the lowest human instincts.

The Rehabilitation of the Municipal Electric Plant at Celina, Ohio

By W. R. Cook
City Manager

THE population of Celina, Ohio, according to the 1920 United States Census, was 4,226, showing an increase of 21 per cent during the preceding decade. The present population is about 4,900. The town is situated on the north and west shores of the famous Grand Reservoir, an artificial body of water covering more than 17,000 acres, which is one of the few remaining relics of the old-time Ohio canal system. The town is practically level, the extreme difference in elevation being about 25 feet. The sanitary and storm-water sewer system are up to date.

Streets in the mercantile sections are 66 to 100 feet in width and are paved and lighted by 157 boulevard electric lights of 400 candle-power each. Other streets throughout the municipality are gravel, with curb and gutter well drained and in general good, passable condition.

Celina owns and operates its municipal electric light and water-works plant. All improvements have been financed from plant earnings, and in the short period of two years this utility has been built up so that its physical assets are worth several hundred thousand dollars. In addition to this, it is rendering many free services to other departments of the city which otherwise would have to be paid for from funds raised by taxation.

Buildings

Many improvements have been added to the plant since January 1, 1925. The main station is a one-story brick building and is used as a combined electric light and water-pumping station and is in fair condition. New floors have been laid in the main building and a new fireproof switchboard, 15 x 25 feet, has been added to the main building, new guard-rails have been installed around the machinery, and the interior has been repainted.

Boiler-Room

A new boiler-room, 50 x 75 feet, has been constructed, built of brick and with a cement floor. This boiler-house has been so constructed that later on an overhead coal-conveying system can be installed without changing the building.

Engines and Generators

The old engines and generators consisted of one 175-kw. Westinghouse generator direct-connected to a Skinner engine with belted exciter and one 225-kw. Electric Machinery Company generator direct-connected to an Ideal engine. A new 520-kw. Allis-Chalmers generator was installed, direct-connected to a 26 x 36 Universal uniflow engine of the latest design.

Street Lighting

The old street-lighting regulators have been replaced by two new modern regulators of much larger capacities, to take care of new street lights that are to be added to the present system.

Switchboard

The old switchboard that was installed in the plant has been removed and a new 10-panel board of the latest design has been installed with a new 8-relay voltage regulator. There will also be installed a 180-kw.-amp., 2,300-volt capacitator for power factor connections on the light and power circuits. This will also improve the voltage regulations.

Boilers

There were five boilers with a total rated horsepower of 885. Three of these boilers were 85 horsepower and were in unsafe working condition. These were removed, and a new 350-horsepower Erie City tube boiler equipped with a pulverized-coal system has been installed. This boiler is also equipped with an indicator and recording steam-flow meter and a flue-gas temperature-recording meter.

The entire steam piping system of the old plant has been removed and a new high-pressure piping system has been installed, which has been insulated with 2 inches of high-grade pipe covering to cut down waste.

System of Electric Distribution

The electric distribution system is undergoing a steady rebuilding. A new main line from the power station has been constructed. The transformers are being rearranged so as to cut down the line losses, and the entire street-lighting system will be rebuilt as soon as possible in order that the streets may be better lighted.

Pumping-Station Equipment

The main pumping-station equipment is housed in the same building with the electric generating plant and consists of two high-duty steam pumps duplicated with a rated capacity of one

million gallons in 24 hours. These pumps are very old and inefficient and are now used only as standby units, as two new electric-motor-driven centrifugal pumping units with a capacity of one thousand gallons per minute have been installed. These pumps have independent 6-inch suction lines from a receiving well and are equipped with foot-valve and strainer.

The new pumps have a 6-inch discharge line which enters a common 12-inch header connecting to the distribution system. When the standpipe is full, the head against which water is pumped is 125 feet. The pressure carried is 55 pounds. A General Electric flow-meter has been installed at the main pumping-station to indicate and record the number of gallons of water used each 24 hours. The average daily consumption of water is 350,000 gallons and the maximum about 600,000 gallons.

At the south part of the town there are two wells. The pumping equipment is housed in a small frame building. The old institution consisted of a two-stage centrifugal pump of 100 gallons capacity connected by a belt to a 30-horsepower motor. This motor burned out and the plant could not be operated because of the poor condition of the machinery. A new high-pressure automatic centrifugal pump has been installed which is controlled from the main plant.

Water-Supply at Main Pumping-Station

There are six drilled wells with 8-inch casings, from 260 to 280 feet deep. The water-level in these wells is 58 feet below ground-level. The total amount of water available in the wells is 380 gallons per minute, or 500,000 gallons per day, which is slightly less than the maximum daily consumption.

In adidtion to the wells at the main pumping-station, there are two other wells which have 10-inch casings and are approximately 270 feet deep. The total amount of water available from these wells is 200 gallons per minute.

Elevated Storage

A steel standpipe 16 feet in diameter and 125 feet high, and with a capacity of 188,000 gallons, is located adjacent to the pumping-station. The base of the standpipe is about 20 feet above the street grade at the City Hall. This standpipe has a 12-inch connection to the distribution system.

Distribution System

A 12-inch line from the pumping-station and standpipe leads toward the mercantile district, where it decreases to 10 inches. Practically all other mains in the distribution system are 6 and 4 inches in diameter. Twenty-five per cent of the total pipe is in dead-ends. There are approximately 12 miles of pipe in the distribution system, as follows:

Size in Inches	Length in Feet	Per Cent
12	3,000	4.8
10	2,500	4.0
8	900	1.4
6	43,600	70.2
4	12,200	19.6
	62,200	100

All mains are of cast iron and are buried to a depth of 5 feet.

County-wide Cooperation Accomplishes Passage of "Save the Beaches" Ordinance

THE people of San Diego County, California, by their foresight and progressiveness of spirit, have assured for all time the same free access of the public to their bathing beaches that has been enjoyed in the past, and even freer access. The ordinance by which this has been accomplished is one which may offer valuable suggestion to communities and counties elsewhere, already becoming anxious to avoid the precedent of places on both Pacific and Atlantic Oceans, and along lakes and rivers as well, where "amusement parks" and similar commercial attractions. and all sorts of minor concessionaires tightly entrenched, have become chronic enemies of civic progressiveness and civic beauty in their vicinities.

The San Diego County ordinance provides for a wide boulevard along the waterfront of all beach property within the county, in order that the public may at all times be assured of easy access to the beaches. It is completely free from "slide-out" clauses. Some attempts were made at the time of its passage to introduce into it a clause giving the authorities power to relax its requirements where these worked undue hardship; but the county officials indicated their conviction that it would be necessary for them to have a fixed rule established to be equally operative in all cases, and free from uncertainties of enforcement. One exemption alone was made, that of strips of land so narrow that roadways could not be successfully laid around them. Such strips, less than 440 yards between high-tide lines, were given exemption with the provision that roadways or streets at least 60 feet wide be laid out at intervals not exceeding 600 feet, leading to the ordinary high-tide land, which, like similar land everywhere in the county, becomes public property, dedicated to park use.

Among organizations sponsoring the "Save the Beaches" movement, through whose efforts the interest of the entire county was aroused in behalf of the ordinance, were the County Federation of Chambers of Commerce, and local chambers of commerce; the County League of Municipalities; the County Federation of Women's Clubs; the County Parent-Teacher Association; and organized labor as represented by the Central Labor Council and local labor unions from various sections of the county.

Ohio County Widens Road with Grader

WHEN Ashland County, Ohio, was considering the widening of a mile of road, the officials realized that the high banks were full of roots and covered with undergrowth which would have to be cut down and removed to the lower side of the road or along the road to raise the grade. The job was done in record time at a surprisingly low cost, considering the yardage to be moved and miscellaneous items.

The underbrush and trees were first cut away and the stumps dynamited. After this material had been removed, the road was widened and brought to grade with a Galion leaning-wheel grader with 12-foot moldboard, drawn by a Caterpillar Sixty tractor. The bank shown in the photograph was approximately 10 feet above the surface of the old road at the point where the

REMOVING THE LOWEST PART OF THE BANK

WIDENING THE FURROW

stakes were set, and the stakes were about 8 feet from the former roadside ditch. These figures refer to the maximum, as the bank was somewhat irregular.

Process of Removing the Bank

The first cut removed the lowest part of the bank. A second cut was made a further step upward, drawing down a large amount of earth. The graders seemed to be affected but little by the numerous stumps and roots in the soil. The stumps were either cut or pulled out, and one of the men was kept busy gathering them into piles to be removed. On the third cut the loosened earth was moved farther out and leveled somewhat to give a basis for the next cut into the high bank, which removed another big bite of earth. By this process the bank was very quickly cut down and moved out into the road. A total length of about one-eighth of a mile was cut down and to a large extent moved in a little over two hours, between 2 o'clock and 4:15, when the men quit for the day.

After the banks had been cut down, the grader was used to move the earth across the road to widen it to the stakes, and also to a considerable extent with the blade nearly square across in drifting the earth from the higher points toward the lower, assisting materially in the earth-moving job. The grader, equipped with a bank sloper, was then used for the finishing touches on the ditches.

MOVING THE DIRT FARTHER OUT

Water-Supply and Sewerage Systems of Oregon

From a Compilation Made by a Committee of the City Club of Portland, Ore.

			WATER				SEWER				
City	Estimated Population	Character of Source	Treatment	Is Supply Affected By Sewage? Pres.	Fut.	Classification	Kind of System	Treatment	Where Discharged	Industrial Waste	Classification
Albany	6,000	River	Filt.	Yes		A	Com.	None	Willamette R.	Slight	A
Amity	600									None	
Arlington	750	River	Filt.	Yes	Yes	A	Sep.	None	Columbia R.	None	A
Ashland	5,500	Creek	Chlo.	No	No	A	Com.	S. T.	Farms	Slight	B
Astoria	15,000	Creek	None	No		B	Com.	None	Columbia R.	Canneries	A
Athena	700	Spgs.-Well	None	No			None			None	B
Baker	9,000	Creek	Chlo.	No		A		None	Beaver Cr.	Slight	C
Bandon	2,500	Creek	Chlo.	No	No	C	Com.	None	Coquille R.	None	A
Bay City	750						None			None	B
Beaverton	1,100	River	None	No	No	A	None			None	C
Bend	10,000	Creek	None	No	No	A	Sep.	I. T.	Farms	None	B
Brownsville	800	Well	None	Yes		B	Com.	None	Calapooia R.	Woolen Mills	A
Burns	1,500	Wells	None	No	No	A	Sep.	S.T.etc.	Dry branch	None	A
Butte Falls	600						None			None	B
Canby	1,000	Wells	None	No	No	A	None			None	C
Carlton	800						None			None	B
Central Point	1,000	Wells	None	No		A	Com.	None	Bear Creek	None	
Chiloquin	1,000	River	Chlo.	Yes	Yes	B	None			None	C
Clatskanie	1,400	Creek	None	No	No		Com.	None	Clatskanie Cr.	None	A
Condon	1,100	Springs	Chlo.	No		A	Sep.	S. T.	Dry branch	None	A
Coquille	2,200	Creeks	Chlo.	No		A	Com.	None	Coquille R.	None	A
Cornelius	500	Creek	None	No	No	B	None			None	B
Corvallis	7,500	Creeks	Chlo.	No	Yes	A	Sep.	None	Willamette R.	None	A
Cottage Grove	2,800	Creeks	Chlo.	No		A	Com.	None	Willamette R.	None	B
Cove	600	None				C	None			None	B
Dallas	2,800	Creek	None	No	No	B	Com.	S. T.	Rickreall Cr.	None	A
Drain	700	Creek	None	No		B	Sep.	None	Elk Cr.	None	C
Dufur	600						None			None	B
Eastside	500	None				C	None			None	B
Echo	500	Well	None	No		A	None			None	B
Elgin	1,000	Creek	None	No	No	A	None			None	C
Enterprise	2,500	Springs	None	No	No	A	Sep.	S. T.	Small Creek	None	B
Estacada	700	Creek	None	Yes	No	C	Com.	None	Clakamas R.	None	A
Eugene	18,000	River	Filt.	Yes	Yes	A	Com.	None	Willamette R.	Slight	A
Falls City	1,000	Creek	None	No	No	A	None			None	C
Forest Grove	2,500	Creek	None	No	No	B	Sep.	I.T.etc.	Tualatin R.	None	A
Fossil	700						None			None	B
Freewater	900	Well	None	No	No	A	None			None	C
Gladstone	1,500	River	Chlo.	Yes		C	Com.	None	Clakamas R.	None	A
Glendale	700	Creek	None	No			Sep.	S. T.	Cow Cr.	None	
Gold Hill	500						None			None	B
Grants Pass	6,200	River	Chlo.	Yes	Yes	B	Sep.	None	Rogue R.	None	A
Gresham	2,000	River	None	No	No	A	None			None	C
Haines	500	Wells	None	No		A	None			None	B
Halfway	850	Springs		No			None			None	C
Hammond	600						None			None	B
Harrisburg	600	Wells	None			C	Sep.	None	Willamette R.	None	A
Heppner	1,400	Creek	Chlo.	No		B	None			None	C
Hermiston	800	Well	None	No		A	None			None	B
Hillsboro	3,000	Creek	None	No	No	B	Sep.	S. T.	Tualatin R.	None	B
Hood River	3,500	Springs	Chlo.	No	No	A	Sep.	None	Columbia R.	Slight	A
Huntington	1,000	Wells	None	No		C				None	
Independence	1,700	Wells	None	No	No	A	Com.	None	Willamette R.	None	A
Jacksonville	800	Springs		No			None			None	B
Jefferson	500	Well					None			None	B
Jordan Valley	700						None			None	C
Joseph	800	Lake	None	No	No	A	None			None	C
Junction City	800	Well	None			B	None			None	C
Klamath Falls	11,000	Wells	None	No	No	B	Sep.	S. T.	Klamath R.	None	A
La Grande	10,000	Creek	Chlo.	No	No	A	Com.	S.T.etc.	Irrigation Ditch	None	
Lakeview	1,500									None	
Lebanon	2,500	River	Chlo.	Yes		B	Com.	None	Santiam R.	Slight	C
Marshfield	7,600	Creek	Filt.	No	No	A	Com.	None	Coos Bay	None	A
McMinnville	4,000	Creek	None	No	No	B	None	Yamhill R.		None	A
Medford	8,500	Springs	None	No	No	A	Com	S. T.	Bear Cr.	Slight	B
Milton	1,800	River	Filt.	Yes			None			None	C
Milwaukie	1,500	River	None	No	No	A	Com.	None	Willamette R.	None	A
Molalla	700									None	
Monmouth	800	Creek	None	No	No	A	Sep.	S. T.	Ash Cr.	None	A
Mt. Angel	1,200	Wells	None	No		B	Sep.	S. T.	Abiqua Cr.	None	A
Myrtle Creek	650						None			None	B
Myrtle Point	1,500							None	Coquille River	None	
Newberg	2,800	Springs	None	No	No	B	Sep.	None	Willamette R.	Paper Mill	B
Newport	1,800	Creek	Chlo.	Yes	Yes	B	Com.	None	Ocean	None	B
North Bend	4,000	Creek	Filt.	No	No	A	Com.	None	Coos Bay	None	A
North Powder	650	Well	None	No	No	A	None			None	B
Nyssa	900						None			None	C
Oakland	650	Creek	Chlo.	Yes		B	None			None	B
Ontario	2,000	River	Filt.	Yes	Yes	A	Com.	None	Snake R.	None	A
Oregon City	6,500	Creek	None	No	No	A	Com.	None	Willamette R.	Paper & Woolen Mills	A
Oswego	2,000	River	None	No	No	A	None			None	C
Pendleton	7,500	Springs	None	No	No	B	Com.	S.T.etc.	Umatilla R.	Woolen Mill	A

City	Estimated Population	WATER: Character of Source	Treatment	Is Supply Affected By Sewage? Pres.	Fut.	Classification	SEWER: Kind of System	Treatment	Where Discharged	Industrial Waste	Classification
Philomath	900	Creek	Chlo.	No	No	A	None			None	C
Portland	365,000	River	None	No	No	A	Com.	None	Willamette R.	Much	A
Prairie City	650						None			None	B
Prineville	1,500	Wells	None	No		A	None			None	C
Rainier	1,600	Creek	None	No		B	Com.	None	Columbia R.	None	A
Redmond	1,000	River	Chlo.	Yes		B	None			None	B
Reedsport	2,000									None	
Roseburg	5,500	River	Filt.	Yes	Yes	A	Com.	None	Umpqua R.	None	C
St. Helens	2,500	Creek	Chlo.	No		B	Com.	None	Columbia R.	Paper Mill	A
Salem	28,000	River*	Chlo.	Yes		B	Com.	None	Willamette R.	Paper Mill, etc.	B
Seaside	3,500	Creek	Chlo.	No	No	A	Com.	None	Tide Water	None	B
Sheridan	800	Springs	None	No	No		None			None	C
Sherwood	600	Wells	None	No		A	Sep.	S. T.	Cedar Cr.	None	A
Silverton	3,600	Creeks	Chlo.	Yes	Yes	B	Com.	None	Silver Cr.	None	B
Springfield	2,500	River	Filt.	Yes	Yes	A	Com.	None	Willamette R.	None	B
Stayton	1,000	River	None	Yes		B	None			None	C
Sutherlin	700	River	Chlo.	Yes			None			None	B
Talent	500						None			None	B
The Dalles	6,000	Creeks	Chlo.	No	No	A	Com.	None	Columbia R.	Slight	A
Tillamook	3,000	Creeks	None	No	No	B	Com.	None	Tide Water	None	A
Toledo	2,200	Creek	None	No	No	A	Sep.	None	Yaquina Bay	None	B
Umatilla	500	Well						None		None	B
Union	1,500	Creek	Chlo.	No	No	B	Com.	None	Catherine Cr.	None	C
Vale	900	Well	Chlo.	No		A	Com.	None	Malheur R.	None	A
Vernonia	2,000	River					Sep.	S. T.	Nehalem R.	None	A
Wallowa	1,200	Creek	None	No		B	Sep.	S. T.	Wallowa R.	None	A
Warrenton	1,300						None			None	C
Wasco	800	Well	None	No	No	A	Sep.	S. T.	Sub-irrigation	None	A
West Linn	2,400	River	None	No	No	A	Sep.	None	Willamette R.	Paper Mill	A
Weston	600						None			None	B
Woodburn	1,800	Wells	None	No		A	Com.	S. T.	Prairie Cr.	None	B
Yamhill	500						None			None	B

Legend

Water—

Treatment:
"Filt." means filtered and chlorinated.
"Chlo." means chlorinated only.

Classification:
Systems have been graded into three classes with reference to sanitary safety of supply. "A" indicates a satisfactory supply, "B" indicates a supply which would probably be satisfactory with chlorination or minor improvement only, and "C" indicates an unsatisfactory supply.

Sewer—

Kind of System:
"Com." indicates a system carrying both sanitary sewage and storm water.
"Sep." indicates a system carrying only sanitary sewage.

Treatment:
"S. T." indicates septic tank.
"I. T." indicates Imhoff tanks.
A few systems have additional purification works as indicated by "etc."

Industrial Waste:
Those cities having no large industrial plants delivering much sewage are listed as "Non" or "Slight."

Classification:
Cities with no sewers are classed "B" or "C," depending on population.
Classifications for both sewer and water were made after conference with the State Board of Health.

General—

Blanks indicate that data are incomplete.
..... indicates that matter is not pertinent, as there is no system.
* Supply from crib in gravel bar.

The Use of Motor Trucks in Transplanting Trees

THE NURSERY DEPARTMENT OF THE HARRISON CONSTRUCTION COMPANY USES THIS WHITE TRUCK IN TRANSPLANTING TREES

The derrick and winch attachment is especially adapted to the work of digging up trees, carrying them to new locations and replanting them, doing it in much less time and at less expense than was formerly possible with gangs of men and unwieldy horse-and-wagon equipment

Lighting and Zoning Coordinated in Lynn

By C. A. B. Halvorson

THE claim is frequently made that Lynn, Mass., is the best-lighted city. Good street lighting today is accepted generally as a modern requirement of the progressive community and a badge of civic consciousness, and many other cities throughout the country have installed intensive lighting systems within the past few years, so that it would be only natural that some might challenge Lynn's claim. As a matter of fact, there are other cities with single streets more brilliantly lighted than any street in Lynn, as, for example, State Street, Chicago. Then there are other cities with well-lighted drives through magnificent parks, as Washington, Philadelphia and New York, and still other cities that have miles of superior highway lighting, as Atlantic City and Miami. On the other hand, there is no city in the country where street lighting is more carefully planned or better adapted to the varied requirements than in Lynn, for here one can find every class of roadway suitably and adequately lighted according to its peculiar necessities. In every case the illumination is sufficient for the needs, but nowhere is there more light than the street demands for its proper use.

Zoning an Aid in Planning the Street-Lighting System

Lynn has adopted a city zoning plan, and the street lighting has been designed by the General Electric Company's engineers in conformity with it. The airplane view of Lynn, taken from a height of about 7,000 feet, shows a general view of a greater part of the city. The principal streets and thoroughfares included in the lighting plan are outlined in white, the full lines indicating the streets already lighted and the dotted lines the streets on which it is planned to extend the lighting in the immediate future. The other streets are mainly residential, and are properly provided for in the general lighting scheme.

The streets shown in the plan total 30 miles in length, of which 22 already have been

AIRPLANE VIEW OF LYNN, WITH MAIN STREETS IN LIGHTING PLAN SHOWN IN WHITE

lighted according to the plan. Luminous arc lamps are used for the main business streets. On some of the streets there are single ornamental lamp standards, 14 or 19 feet high; on other streets twin-light units mounted 22 feet high provide the illumination.

On the other business streets (main throughfares) the pedestrian traffic is less and, while the same general type of lighting is employed, the illumination intensities are not so high. Both arcs and large incandescent lamps are used on these streets. The ornamental units using the 1,500-candlepower incandescent lamps are similar in design to the arc lamp units.

On the main thoroughfares the automobile traffic is particularly heavy because of the location of Lynn on a principal route eastward from Boston, and an illumination is required that is adequate for local and through automobile traffic as well as for pedestrians on the sidewalks. For this lighting the 1,000-candlepower lamp bulb is partially enclosed within a dome-shaped glass prismatic refractor, giving an asymmetric distribution of light. The refractor collects a considerable amount of the light that would otherwise be directed upward and toward the houses and redirects it along the streets, thus relieving the brightness on the house fronts and giving added intensity where it is needed most. The globes, of the same general character and appearance as those used on the other classes of streets, are of light alabaster rippled glass, especially effective for horizontal diffusion and with a very low absorption of light. These units, in the main, are bracket-mounted at a height of 20 feet.

Residence streets that carry a considerable amount of through traffic are considered separately from the residence streets that carry only local traffic. On these streets an ornamental bracket-type unit is used in order to suspend the light source beyond the tree trunks and over the road at a mounting height of 16 feet. Here 600-candlepower lamps are used with large rippled globes, so that the apparent brightness is kept at a low value, resulting in a soft, even lighting which is surprising in its freedom from glare and in the ease of vision along the street.

On the residence streets that carry no through traffic a somewhat lower intensity of illumination is sufficient. On some of these streets 250-candlepower lamps are used, mounted 16 feet high, with a globe similar in shape to those used on the previous class of street, with the same rippled surface, while on the other streets 100-candlepower lamps are used with reflectors having a porcelain surface and without enclosing globes.

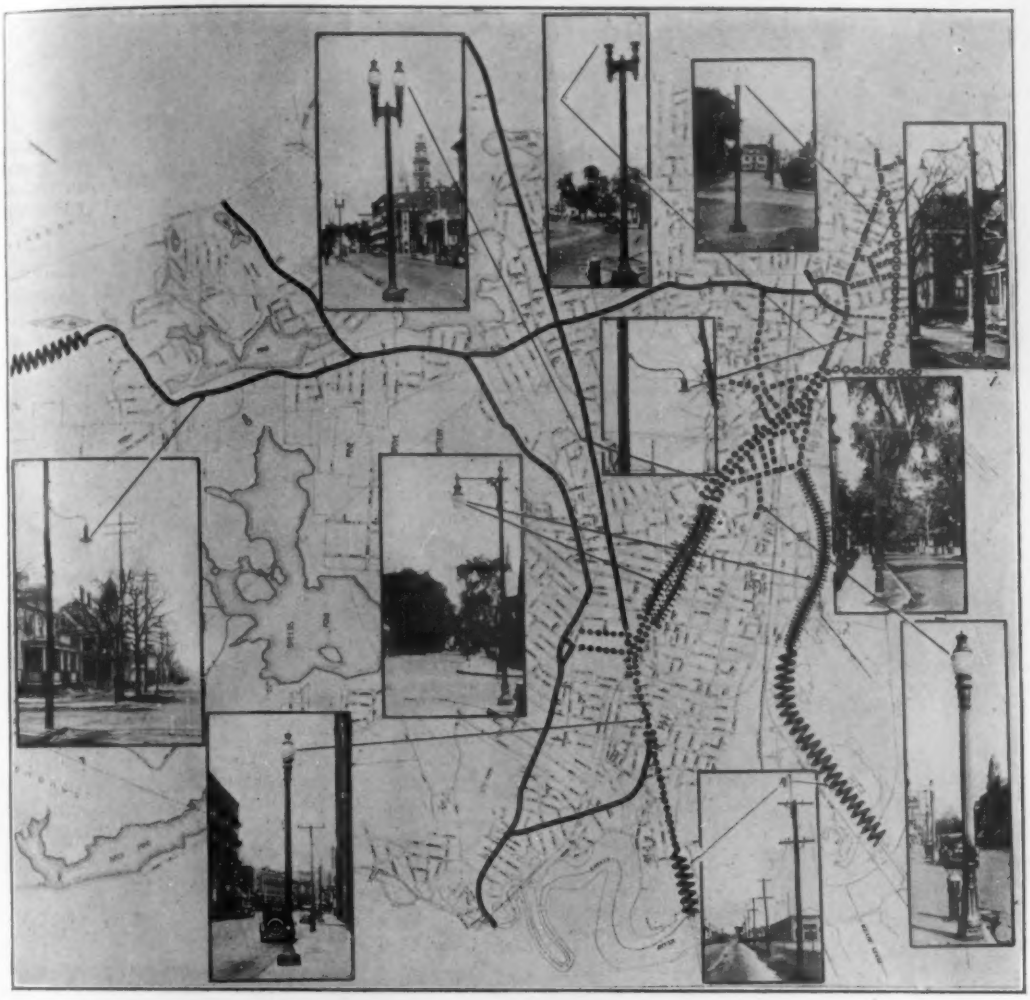
In the case of interurban highways, since economy of installation and maintenance dictates that lamps of small size (250 candlepower) be spaced a considerable distance apart, the utmost conservation of light is required. The projector-type unit employed for this lighting consists of a double system of nested parabolic reflectors, designed to concentrate as much of the light as possible and direct it to the road surface. High mounting is necessary to avoid glare effects from the high-candlepower beams. They are mounted 30 feet high, and either 150 or 300 feet apart.

Special Conditions on Certain Streets

In addition to these definite classes of streets, somewhat special conditions had to be met in the case of North and South Common Streets. Here the streets are illuminated to care for a fairly heavy traffic, and at the same time light is thrown across the street and across the Common so as to illuminate the whole area. For this lighting, ornamental bracket-type units of 1,000-candlepower rating are suspended beyond the curbs and tree lines, 19 feet high. The units are equipped with prismatic refractors and rippled glass diffusing globes. In general the lighting units throughout the city are located on both sides of the street, but in this special case the units are mounted in single rows on the outer or house sides. The bracket method of mounting keeps the lamp units clear of tree trunks and provides good illumination on the curbs. At the same time the reduction in intensities on the houses is advantageous.

Along the Lynn Shore Drive the condition is somewhat peculiar in that it is desirable to illuminate the road surface on one side and the promenade on the other, and to throw sufficient light toward the water beyond to illuminate the incoming surf and to serve as a safety measure for evening bathers. It was found that upright ornamental lights of high candlepower mounted about 18 feet high gave excellent results, the high intensity of the light and freedom from glare contributing to the scenic beauty of the shore front.

The lighting of the city of Lynn has been laid out not only with regard to conditions as they exist at the present time, but also with an eye to the future growth and expansion of the city along many lines. In Lewis Street, for example, the lighting units are spaced about 200 feet apart on each side, and in alternate or staggered formation. When business conditions, pedestrian traffic, property values and other considerations warrant, this lighting can be doubled by placing other units opposite those already installed, or, even better, twin



STREET MAP OF LYNN, SHOWING MAIN LIGHTING PLAN BY CLASSES, WITH TYPE OF LIGHTING UNIT FOR EACH CLASS

brackets can be mounted in place of the single units.

Effect of Street Illumination on the Routing of Traffic

Special mention should be made of the effect of street illumination on the routing of traffic, particularly so because traffic conditions are a very much discussed problem in Lynn at the present time. In the lighting of Lewis Street, one of the main thoroughfares and the shortest distance between the center of the city and Swampscott, a brilliant illumination has been provided, not only with the idea of deflecting traffic from the residential streets, but also to attract people to it so as to improve business on that street.

Throughout the entire plan of the illumination of Lynn, careful attention has been given to the physiological requirements, the selection of the size and kind of lamps, the glassware and the mounting heights, so as to take advantage of every detail that would contribute to the safety, the convenience, and the pleasure of the thousands who frequent the streets and sidewalks.

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Is City Operation of Street Railways a Political Menace?

LOS ANGELES has recently been faced with claims for a higher rate of fare on the lines of the Los Angeles Railway Corporation, and has engaged Dr. Delos F. Wilcox, of Grand Rapids, Mich., for expert assistance. In a preliminary report to the City Council on local transportation policy, Dr. Wilcox dealt with the question of the "political menace" of public ownership, among others:

"With respect to possible dangers from the transfer of a large body of utility employees to the public service, I may refer to the favorable experience of the city of Los Angeles itself in the operation of the water and power bureaus. Although it may be admitted that in some cities under municipal operation political conditions are by no means perfect, I have never seen any evidence that such conditions are worse in cities which operate the street railways than in those where private operation prevails. It must be recalled that the evil conditions in American cities which gave our municipal governments such a bad name a generation ago arose largely through the corruption incident in those times to franchise granting.

"San Francisco has been operating street car lines since 1912, and I venture to say that the city's reputation for civic decency and municipal efficiency is very much higher now than it was prior to that date. Under the administration that launched municipal ownership of street railways in Detroit, that city acquired the reputation of being the best-governed city in the United States. Seattle has been having a good deal of turmoil and financial difficulty with respect to its municipal car lines, but, so far as I know, Seattle's only experience approaching a scandal in connection with the municipal car lines grew out of the original purchase at what is believed to have been an exorbitant price. Toronto has recently embarked upon municipal ownership and seems to have applied to this enterprise the same high skill and courage that has characterized the operations of the Ontario hydro-electric system. In Great Britain and Australia municipal operation of tramways has been the prevailing policy for many years, and we are accustomed, whether rightly or wrongly, to look with considerable respect upon the achievements of municipal government in those countries.

"With respect to the danger that the street car employees would use political pressure to get their wages increased, it is worth noting that in Chicago, under private ownership, trainmen's wages were pushed up to the peak for the country some years ago through the apparent connivance of the companies to force a big increase in fares, and at the present time the wages paid in Philadelphia, under the Mitten management, much lauded for its efficiency, are even higher than the wages paid on the municipal lines of Detroit and San Francisco.

"In street railway operation, where the great masses of the citizens come in daily contact with the service and pay for it as they ride, the public has a better chance than in any other utility to insist upon good service and efficient operation. However, I do not wish to minimize in any way the importance of taking every possible precaution to insure efficiency and freedom from petty political interference in the operation of municipal street railway service.

"The good features of the present management ought by all means to be preserved, in case the city of Los Angeles should decide to take over the car lines, and the plans adopted should be such as to insure better things instead of worse under public management."

What Los Angeles Could Gain by Purchase of Car Lines

In his preliminary report to the City Council, Dr. Delos F. Wilcox thus summarizes the case for public ownership:

"If the city acquired the Los Angeles Railway lines, it would immediately get full jurisdiction over rates, service, and extensions; it could base its rate policies on actual cost without fear of court interference; it could save the difference between the fair rate of return allowed by the commission to a privately owned utility and the rate of interest which the city would have to pay; it could save the gross receipts and income taxes now paid to the State and Federal Governments, and it could get many of the benefits of unification even if it did not acquire the Red Car Lines (Pacific Electric Railway Co.).

"Street railways are not obsolete as a means of urban transportation. The political dangers in municipal operation are no more serious than those under private operation. The city of Los Angeles seems to have an unusual opportunity at the present time to acquire the Yellow Car Lines at a conservative price without having to issue any city bonds therefor."

Propaganda Which Hinders Municipal Progress

"It is interesting to observe," remarks William Anderson, Ph.D., in his book, "American City Government," "how assiduously the idea of municipal inefficiency is spread abroad by those persons to whose interest it is to prevent the increase of municipal functions, and who are to some extent directly responsible for the corruption and inefficiency that exist. . . . A great many city dwellers have become imbued with the thought that private business is highly efficient and honest, while the public business is shot through and through with graft and inefficiency."

Dr. Anderson dissents from this view. "There are unquestionably many departments in city government being handled as honestly and intelligently as are the best-managed private businesses." He goes further and sees a positive evil in this current lack of faith: "One of the principal obstacles to governmental reform is the widespread notion that governments, for some unexplained cause peculiar to themselves, are incapable of being improved."

Reducing Government and Living Costs by City Planning and Zoning

By George B. Ford
Technical Advisory Corporation

CITY planning and zoning cheapen the cost of public services and utilities.

The Worcester Gas Light Company testified that the Worcester City Plan was actually cheapening the cost of the gas service to the consumer because the plan made it possible to lay out and calculate their improvements carefully for many years ahead and to know what they would have to deal with instead of guessing at it.

The telephone companies in many cities have hailed the city plan as a very distinct help to them in their well-known planning ahead for the future of the telephone service, all of which means an ultimate economy to the consumer.

Sewer and water commissioners or directors of public works in various cities, notably in St. Louis, Newark, Norfolk, Springfield and elsewhere, have testified to the fact that the existence of a city plan and a zoning ordinance made it far more possible to calculate ahead, without undue allowance for contingencies, the exact sizes of sewers or water-mains that would be needed in any street to take care of future growth. In various cases they have testified that this meant an appreciable saving to the city, all of which is bound to be reflected in the tax rate.

City planning and zoning mean cheaper public improvements.

There are many cities today that are conducting their paving and street improvement programs according to the development program laid down in the city plan. In the past they have been accustomed, like most cities, to yield to the pressure of the loudest demand for public improvements, with the result that many little-used streets were beautifully paved, while many of the thoroughfares were in wretched condition. A carefully worked-out city plan and program is found to be a very persuasive argument to present to an insistent public to prove why the city should carry on its improvements in an orderly, logical way.

Cities all over the country have a tendency to make street pavements either too wide or too narrow; that is, too wide on minor residential streets and too narrow on thoroughfares. It is obvious that the city plan can show how wide each and every pavement should be for greatest usefulness and economy. The result is that the city gets full value for every dollar expended on such public improvements.

The city plan also shows how to economize in preparing for future growth. It shows by scientific calculation how it will mean a very distinct saving to the city to impose a building line for street-widening purposes here and to cut through a new thoroughfare there. It shows, as it did conclusively in Worcester and Providence, how the carrying out of certain carefully worked out by-passes should save a number of thousands of dollars a day to the owners of vehicles now congested in the central business districts.

City planning and zoning mean cheaper public buildings and parks.

In Springfield, Mass., the existence of a carefully worked-out scheme for parkways, parks, and playfields has appealed so strongly to various property owners, who have land lying within the proposed park areas, that they have been readily induced to give or bequeath their land to the city to help on the park scheme. Thus, many hundreds of acres have come to the city gratis, thanks to the plan.

In any case, the plan does make it feasible to buy up tracts that are going to be essential in the future at a time when they are still undeveloped and reasonably cheap, all of which means a distinct saving to the taxpayers.

Even the best of school boards and fire commissions make mistakes in selecting sites for future buildings. They do the best they can with the information that they have available, but it has been proved time and again in various cities that the existence of a carefully worked-out city plan and zoning ordinance makes it possible to locate schools and fire-stations and other public buildings far more accurately and surely than would otherwise be possible. For example, in one well-known city the Mayor recently testified that the excellent school board was just about to purchase a site for a large new school. Then the matter was referred to the planning board, who had just completed their city plan and zoning ordinance, and they proved conclusively to the school board that the site chosen would eventually be in the heart of a business district at the junction of two heavy-traffic arteries—a most undesirable location for a grammar school. The planning board picked out a new site in the neighborhood on a side street in the heart of a permanent residence district and saved the school board a hundred thousand dollars. That was enough to pay the entire cost of the city plan several times over. It is not that the school board was not intelligent, but simply that the procedure of making a city plan developed a lot of new information that materially changed the situation.

A city plan makes the private developer give more to the community.

The other evening I attended a conference between the City Council of a charming New Jersey city near the west end of the new Hudson River Bridge and one of the most famous and most successful developers anywhere around New York, a man who has a reputation for driving a particularly hard bargain. He was asking the Council to approve his plat plan for over one hundred acres in a corner of the city. According to the somewhat ineffective New Jersey law the Council really had no hold at all over the developer if he wished to sell his lots by metes and bounds instead of according to a recorded map. Nevertheless, thanks to the fact that they had arrived with a plan and knew

exactly what they needed for the best interest of the future city, the developer agreed to give the city gratis nearly eight per cent of his tract (in addition to the streets) for park, playground, school and fire-station sites, and at locations chosen by the city. He admitted afterward that he believed it will actually pay him in the long run to do this.

Another municipality nearby recently laid out a street, parkway and park plan for all of its undeveloped area. It was so laid out as not only to satisfy to the best advantage the future needs of the community at large, but also so as to give the most practical development to each individual parcel. The town officials took the plant to the property owners and explained it, with the result that virtually all of the owners, without compulsion, or without having to do so by law, have agreed to abide by the plan. Incidentally, the town is probably saving itself a great many thousand dollars in eventual improvement cost and in the cost of having to rectify a patchwork street system.

Zoning pays.

About a year ago the city officials in a number of cities where zoning ordinances are in effect, were asked if they knew of any case where a zoning ordinance had decreased property values. Not one case was reported. They were asked if they knew of cases where values were enhanced in a way that could be directly traced to zoning, and they all reported that they knew of many such instances. Nearly every city could name some blighted district that zoning was helping to pull back. Various tax assessors have reported that they are able to increase the assessed valuation of certain properties that seem to be especially benefited by zoning, and almost never do they receive a protest against such increases. It is universally acknowledged by realtors and others that zoning stabilizes property values and thereby renders the equity and mortgage a safer investment.

City planning and zoning avoid waste and lower the cost of development.

Various cities have testified to the fact that before city planning went into effect they were wasting large sums in improvements that had to be scrapped or torn up long before they had become outworn, merely because they had not been planned far ahead and had already become inadequate. It is generally recognized that city planning and zoning can avoid most of this sort of waste, and insure a consequent saving to the taxpayer.

City planning and zoning mean more than this. They mean a positive economy to the citizen in providing for orderly practical growth and for maximum convenience and time saving in getting about the community and in conducting business or industry in it. In other words, a good city plan is of just as much practical value to the community as a whole as in the wise business man's program of development to the success of his own plan. In fact, good city planning is nothing more or less than applying good business common sense to the development of the city, and if done wisely it is bound to pay for itself many times over.

ACKNOWLEDGMENT.—From an address prepared for the Philadelphia Conference on City Government, April 29, 1927.

Can Cities Meet the Fundamental Needs of Children?

The U. S. Bureau of Education Offers Assistance Towards the Solution of This Problem

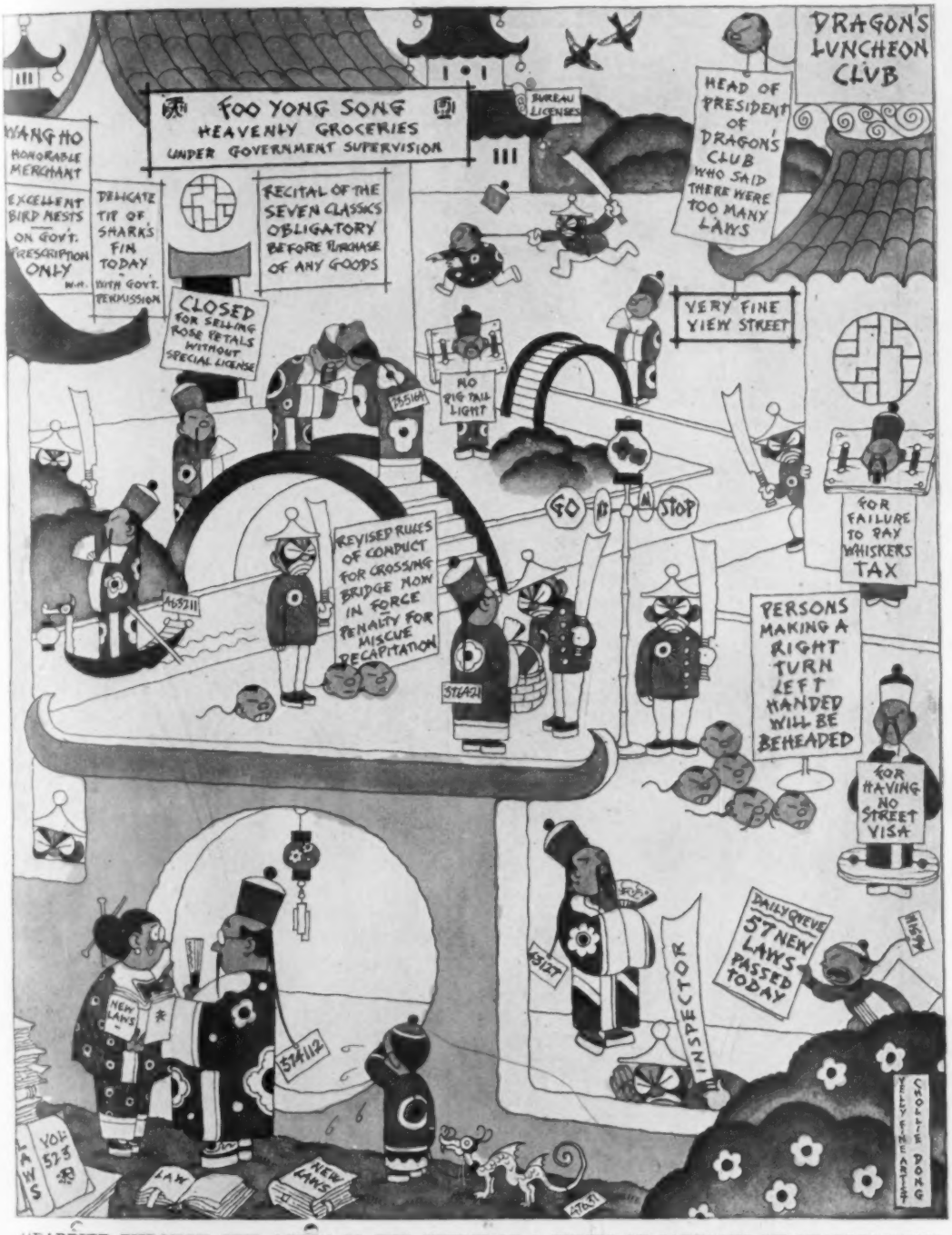
THE city as it exists to-day does not satisfy the fundamental needs of children. Children need to play, but it is a rare city that has adequate play space for its children, so located and supervised that it is easy for all children to play under wholesome conditions. The result is that a large number of children in the cities play in the only available place, i. e., the city streets. Last year nearly 6,000 children were killed on streets and highways and 151,000 were injured. Children need to have the chance for constructive, creative manual work, but there is small opportunity or need for such work in the average city home. Children need first-hand contact with nature—the earth and sea, birds, flowers, trees. Children are natural scientists and this is the kind of subject matter upon which they should have the opportunity to feed their curiosity. Each generation needs these contacts with the actual physical world for the sake of its own growth and the preservation of the race. But the city, with its pavements and brick and mortar, is starving rather than nourishing this curiosity about the physical world.

Probably one of the most serious aspects of city life for children is that it tends to build up habits of cheap amusement, cheap and undesirable ways of using their leisure time. According to the findings of modern psychology, the way in which people spend their leisure time is of vital importance in their whole character development, and the use of their leisure time depends to a large extent upon the habits of taste formed in childhood. It is for this reason that educators are now realizing that city schools must not only teach the three R's but must counteract the effect of city life upon children by helping them to form tastes for worth-while use of their leisure time through opportunities for hearing good music and seeing fine works of art, taking part in producing and seeing good plays, hearing interesting lectures which broaden their horizon.

That conditions have changed in our cities and that a curriculum prepared only a few years ago no longer meets the needs of modern city life has been fully recognized. The reorganization of the curriculum and the necessary assembling of proper materials of instruction attendant thereto is therefore receiving more of the attention of educational leaders at the present moment than any other school problem. The Bureau of Education is endeavoring to be of assistance to those attempting a solution of this important problem. One of our specialists has prepared from time to time a series of type studies on modern life and the elements of social science based directly upon the child's need and interest as related to present-day civilization.

—From a recent statement by Commissioner John J. Tigert, of the U. S. Bureau of Education.

Traffic Regulation and Other Law-Making in Celestial Cathay


DRAGON'S LUNCHEON CLUB
FOO YONG SONG
HEAVENLY GROCERIES
UNDER GOVERNMENT SUPERVISION
BUREAU LICENSES
WANG HO
HONORABLE MERCHANT
EXCELLENT BIRD NESTS
ON GOV'T. PRESCRIPTION ONLY
DELICATE TIP OF SHARK'S FIN TODAY WITH GOV'T. PERMISSION
RECITAL OF THE SEVEN CLASSICS OBLIGATORY BEFORE PURCHASE OF ANY GOODS
CLOSED FOR SELLING ROSE PETALS WITHOUT SPECIAL LICENSE
HEAD OF PRESIDENT OF DRAGON'S CLUB WHO SAID THERE WERE TOO MANY LAWS
VERY FINE VIEW STREET
NO PIG TAIL LIGHT
GO
STOP
FOR FAILURE TO PAY WHISKERS TAX
REVISED RULES OF CONDUCT FOR CROSSING BRIDGE NOW IN FORCE PENALTY FOR MISCUE DECAPITATION
PERSONS MAKING A RIGHT TURN LEFT HANDED WILL BE BEHEADED
FOR HAVING NO STREET VISA
DAILY REVIEW
57 NEW LAWS PASSED TODAY
INSPECTOR
NEW LAWS
VOL 573
LAWS
NEW LAWS
CHOLLIE DONG
YELLOW PEARL ARTIST

"BABBITT THROUGH THE AGES" IS THE THEME OF A SERIES OF CARTOONS BY CHARLES DUNN WHICH HAVE BEEN APPEARING MONTHLY IN "NATION'S BUSINESS." THE CAPTION OF THIS CARTOON, WHICH IS NO. VI OF THE SERIES, READS:

Wong Foo Babbitt, newly elected president of the Dragons' Club of the City of Unspeakable Bliss, is about to set forth to purchase a dozen petrified pigeons' eggs—no small task in those early days of much government regulation. Mr. Wong has read seventeen volumes of laws regulating street traffic and the thirteen volumes regarding purchases (especially Vol. IV [eggs], Sec. 2 [pigeons]; see People vs. Wing 146 Canton 283). His wife and child bid him farewell—perhaps forever

Height Regulation by Cubical Contents

Why Pile Up Trouble Needlessly?

When the city of New York adopted its zoning ordinance eleven years ago, The American City called attention editorially to the fact that the New York regulations, while a notable forward step in the direction of orderly city development, ought not to be regarded as a model for smaller municipalities. To quote from the issue of this magazine for August, 1916:

"New York's success in adopting a comprehensive districting plan will no doubt afford great stimulus to similar work elsewhere. But it cannot be too strongly emphasized that other cities will make a serious mistake if they consider the New York restrictions as a standard to be copied in detail. New York has sinned so greatly in the past that its districting has had to be based altogether too much on congested skyscraper and tenement house conditions."

Another forward step in zoning control of skyscrapers has been the recent adoption in St. Louis, Minneapolis, Milwaukee and other cities, of regulations for controlling not merely the height, but the cubical contents of buildings. The effect of this method of regulation on the height and bulk of buildings is graphically shown in the accompanying Evansville chart. The principle, we believe, is an excellent one, but we again call the attention of the smaller cities to the costly and needless trouble they will be piling up for themselves if they do not adopt and retain much more drastic limitations than even those proposed for Evansville.

A simple and rational application of the cubical contents principle to most business districts of cities would be to allow no building to be erected to a height greater than the width of the street on which it faces, unless by provisions of yards, courts or setbacks the cubical contents of the building are kept down to a bulk not exceeding the area of the lot multiplied by the width of the street; inner courts not opening on streets, alleys or yards to be considered as parts of the cubical contents of the building.

Even the largest cities, we believe, might well adopt such a restriction in their business districts now developing outside of the most congested downtown sections. Structures of a bulk equivalent to the width of the street times the area of the lot will bring to most streets all the traffic they ought to be expected to handle.

The foregoing suggestion applies in general to cities of over 20,000 or 30,000 population. For smaller municipalities, even this proposal—which may seem drastic to the larger cities—will permit a needlessly intensive use of the land, and a flat limitation of from three to six stories for business and office buildings may prove acceptable for many years to come.

Setback-Volume Provisions Suggested for Evansville

By Earl O. Mills

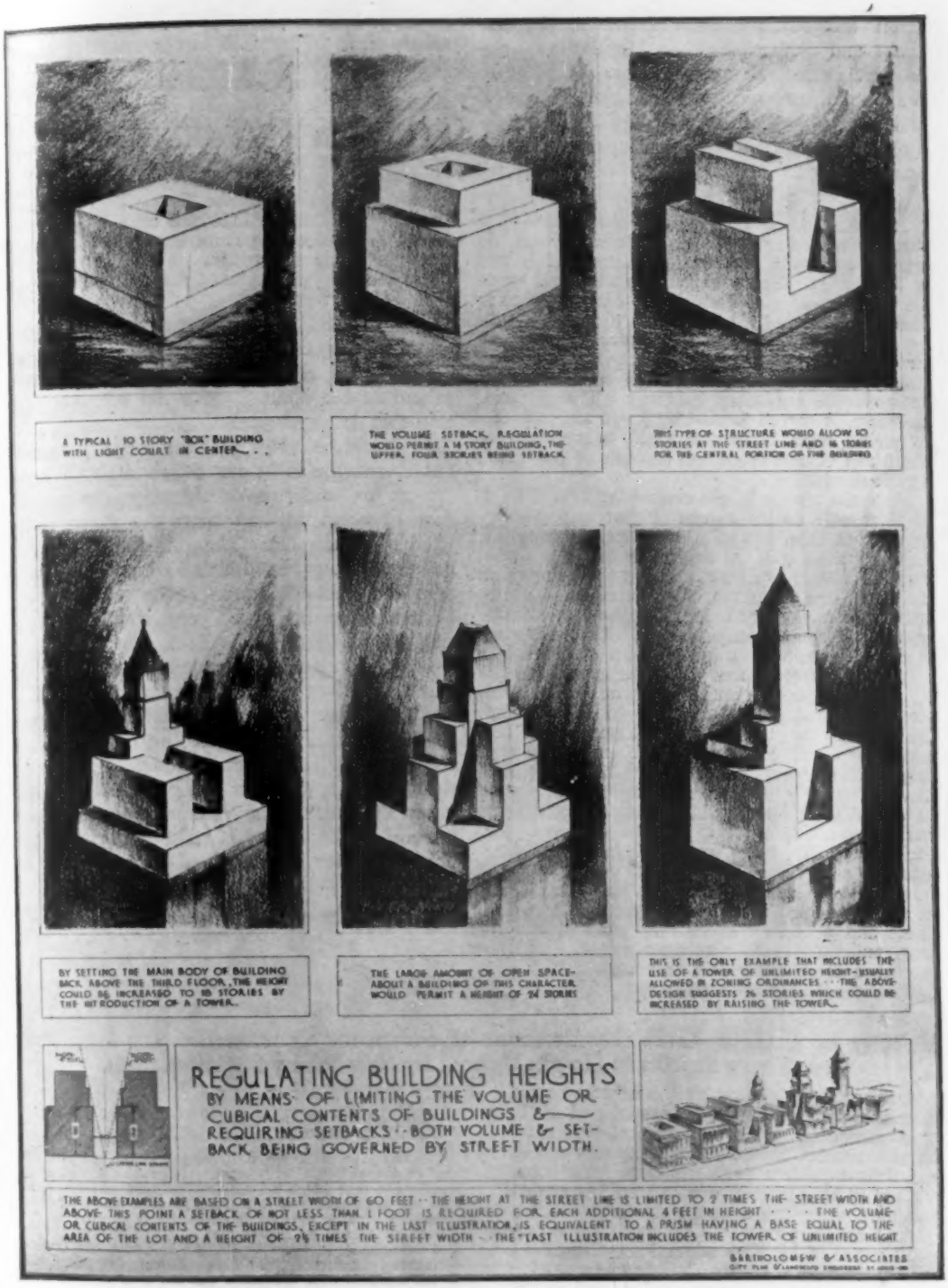
City Planner, Member of Firm, Harland Bartholomew & Associates, St. Louis, Mo.

HOW shall the continued insistence for high buildings in the smaller cities be met in the future? To all who have studied problems of city growth and traffic congestion, the wisdom of some rational height limitation is obvious, but experience has proved that the public generally are prone to frown upon any regulation that might prevent their community from taking on a so-called metropolitan appearance.

Numerous cities, particularly those of moderate size, have adopted flat limitations of ten or twelve stories, but when the prospect for a taller structure looms on the horizon, public sentiment, often with the support of the press, is quickly swayed to favor the higher building. Local councils, sometimes contrary to their own good judgment, yield to the popular demand, and the height limitation is unwisely increased to some arbitrary and unreasonable height. There is evident need, therefore, for a regulation that will permit of high buildings and at the same time make proper allowance for light and air and in some measure prevent traffic congestion.

The setback regulation adopted in the New York zoning law of 1916 was a notable step forward in the regulation of high buildings. It made better provision than formerly for light and air, but has proved to be ineffective in preventing extreme traffic congestion. One way in which smaller cities can profit by New York's experience would be by limiting the cubical contents or volume of each building in relation to the width of the street upon which it abuts. Such regulations, embodying both the setback and the volume provisions, have been proposed for Evansville, Ind.

The maximum height permitted in Evansville at present, under both the building code and the zoning ordinance, is ten stories. This limitation originated in Evansville in its modern building code, which was fashioned after the recommendations of the National Board of Fire Underwriters and adopted prior to the initiation of the zoning studies. The ten-story limit being a reasonable regulation, it was naturally incorporated in the final zoning ordinance.


A TYPICAL 10 STORY "BOX" BUILDING WITH LIGHT COURT IN CENTER. . .
THE VOLUME SETBACK REGULATION WOULD PERMIT A 16 STORY BUILDING, THE UPPER FOUR STORIES BEING SETBACK
THIS TYPE OF STRUCTURE WOULD ALLOW 10 STORIES AT THE STREET LINE AND 16 STORIES FOR THE CENTRAL PORTION OF THE BUILDING
BY SETTING THE MAIN BODY OF BUILDING BACK ABOVE THE THIRD FLOOR, THE HEIGHT COULD BE INCREASED TO 10 STORIES BY THE INTRODUCTION OF A TOWER.
THE LARGE AMOUNT OF OPEN SPACE ABOUT A BUILDING OF THIS CHARACTER WOULD PERMIT A HEIGHT OF 24 STORIES
THIS IS THE ONLY EXAMPLE THAT INCLUDES THE USE OF A TOWER OF UNLIMITED HEIGHT - USUALLY ALLOWED IN ZONING ORDINANCES . . THE ABOVE DESIGN SUGGESTS 24 STORIES WHICH COULD BE INCREASED BY RAISING THE TOWER.
REGULATING BUILDING HEIGHTS
BY MEANS OF LIMITING THE VOLUME OR CUBICAL CONTENTS OF BUILDINGS & REQUIRING SETBACKS - BOTH VOLUME & SETBACK BEING GOVERNED BY STREET WIDTH.
THE ABOVE EXAMPLES ARE BASED ON A STREET WIDTH OF 60 FEET . . THE HEIGHT AT THE STREET LINE IS LIMITED TO 2 TIMES THE STREET WIDTH AND ABOVE THIS POINT A SETBACK OF NOT LESS THAN 1 FOOT IS REQUIRED FOR EACH ADDITIONAL 4 FEET IN HEIGHT . . . THE VOLUME OR CUBICAL CONTENTS OF THE BUILDINGS, EXCEPT IN THE LAST ILLUSTRATION, IS EQUIVALENT TO A PRISM HAVING A BASE EQUAL TO THE AREA OF THE LOT AND A HEIGHT OF 2½ TIMES THE STREET WIDTH . . THE LAST ILLUSTRATION INCLUDES THE TOWER OF UNLIMITED HEIGHT
BARTHOLOMEW & ASSOCIATES

Considerable opposition to this limitation arose when an application was made for a twelve-story building. As a consequence, a Committee on Building Heights was appointed to give the matter further study and report its findings to the City Council. This Committee consisted of members of the City Council, City Planning Commission, and Real Estate Board. The various problems and reasons for limiting heights of buildings were discussed at length and, at the request of the Committee, a brief report was submitted outlining three dif-

nance.

ferent methods, namely, Flat Limitation, Setback, and Setback-Volume Regulation. Below are extracts from the report submitted to the Committee on the last-mentioned method, and to clarify the application of the Setback-Volume Regulation the accompanying chart was prepared.

Setback-Volume Regulation

It should be obvious even to the layman that there is a relation between street width and the amount of traffic that can be carried safely and expeditiously. We know that, if a structural member of a building is designed to carry four tons, it cannot reasonably be expected to carry twenty or thirty tons. The same is precisely true of streets. We cannot safely or economically place twenty- or thirty-story buildings on streets laid out to serve four-story buildings. The problem, therefore, is one to provide light and air, and also to strike some reasonable ratio between street width and volume or cubical contents of the buildings it serves.

Since the streets in the central business district of Evansville do not exceed 60 feet in width except in one case, that of Main Street, which is 75 feet, and since it is the suggestion of the committee that buildings be permitted to go ten stories at the street line if desired, a new method of regulation is here suggested and its application is illustrated on the accompanying chart. These illustrations are based upon a street width of 60 feet.

As will be seen, the regulation would permit buildings to go up considerably more than ten stories, depending upon the size of the lot and the open spaces provided. In addition, a tower not exceeding 60 feet square may be erected to any height above the main body of the building. The only difference between the principle of this provision and the New York law is that the volume or cubical contents is limited. For example, the cubical contents were computed for a building located on a block 300 feet square under both forms of regulation. A building having a height at the street line of two times the width of the street and a setback above that point of one to four, unlimited as to maximum height, could be erected approximately 500 feet high and would contain about 25,000,000 cubic feet. This cubage, however, does not allow for open spaces or courts which might be provided to the extent of about twenty per cent of the total contents. Allowing for this would reduce the cubical contents to about 20,000,000.

By requiring a setback above a height equal to twice the width of the street and limiting the volume of the building to the area of the lot multiplied by two and one-half times the width of the street, as suggested in the Evansville regulation, the contents would be 13,500,000 cubic feet and the height would depend upon the shape of the building. By introducing the setback at about the fourth floor, it would be possible to erect a building more than 200 feet high.

The Setback-Volume Regulation has been approved by the Committee on Heights of Buildings in Evansville and has been transmitted to the Council with the recommendation that it be adopted.

It should be added that the height proposed for Evansville is by no means ideal. Where streets are wider, a considerably lower ratio than two and one-half times the street width would be desirable. The ratios of height to street width suggested herein were made necessary to permit ten stories at the street line on 60-foot streets and also a greater height by setting the building back, above that point.

Obviously, such a regulation as here proposed would in some measure accomplish the two basic results sought in height limitation, namely, light and air, and the prevention of congestion. The former would be obtained through the application of the setback, and the latter by limiting the volume or cubical contents of the building. In addition to these vital necessities, for which the city is privileged to invoke the police power of the state, there should and will come about as a consequence a perpetuation of that embryonic and distinctive type of American architecture now developing in New York and other great cities.

Validity of Building-Code Requirement of Fireproof Construction for Buildings Over Three Stories in Height Upheld by New Jersey Supreme Court

IN common with many of the suburban municipalities in New Jersey, the borough of Madison is struggling with a threatened invasion of large apartment houses. The promoters are often speculative builders from the large cities who, if allowed to have their own way, would erect unsafe buildings, occupying a needlessly large percentage of the lot. To counteract this tendency, the Mayor and Council of Madison adopted some months ago two amendments to the building code of the borough. One of these requires fireproof construction for any building in excess of three stories in height, and the other provides that not more than one family shall be housed on each 2,500 square feet of lot area (or 17 families to the acre).

Prior to the adoption of these amendments, there had been filed with the building inspector an application for a permit for a four-story, forty-family apartment house on a lot 200 x 150 feet. The permit was refused and the case carried by the applicant to the Supreme Court of the state. In a decision handed down on June 7, upholding the Board of Adjustment in refusing to reverse the action of the building inspector, Chief Justice Gummere said:

"In the case of Rohrs v. Zabriskie, Supt. 133 Atl. 65, the Supreme Court had before it practically the same question as that which is presently involved, and concluded that the requirement of the building code that a building somewhat similar to that proposed to be erected by the prosecutor should be of fireproof construction was a valid and reasonable exercise of the police power of the municipality. It further held that, although the amendment of the building code ordinance was not adopted until after the action of the Board of Adjustment affirming the refusal of the building inspector, that fact was immaterial in determining whether or not the permit applied for should be granted, and also held that the change in the ordinance before the permit was granted was a bar to the issuing of the permit. Following the reasoning of the decision in that case, I reach the conclusion that the writ of certiorari should be dismissed."

The Court did not discuss the validity of the density of population amendment, but this will doubtless be tested if revised plans are filed for a three-story building on the same site.

to give the matter further study and report its findings to the City Council. This Committee

length and, at the request of the Committee, a brief report was submitted outlining three dif-

Forward Steps

Reported by Municipal Officials, Chamber of Commerce Executives and Others

New Recreational Facilities for Clifton

CLIFTON, ARIZ.—Two improvements of great value to the community have been completed this spring by the town government of Clifton, a progressive municipality of about 4,000 population in the center of a large mining section. One of these improvements is an up-to-date municipal swimming pool replete with the latest equipment for providing convenient and sanitary bathing; the other is a concrete tennis court, 45 by 90 feet, which may be used also for open-air dancing.

In financing these two projects, the city was aided by the Phelps Dodge Corporation, this arrangement having been made possible through the cooperation of Captain Joseph P. Hodgson, local District Manager of this mining company. An interesting feature of the pool is that the water is kept at a suitable temperature for bathing at all times by supplementing the water from the city's mains, which supply the pool, with hot mineral water from the noted Clifton springs. The pool is located on the bank of the San Francisco River, in the center of the city. Hot springs bubble forth in a number of spots in this vicinity, and when the temperature requires it, water from one of these springs is raised to the pool by a simple process.

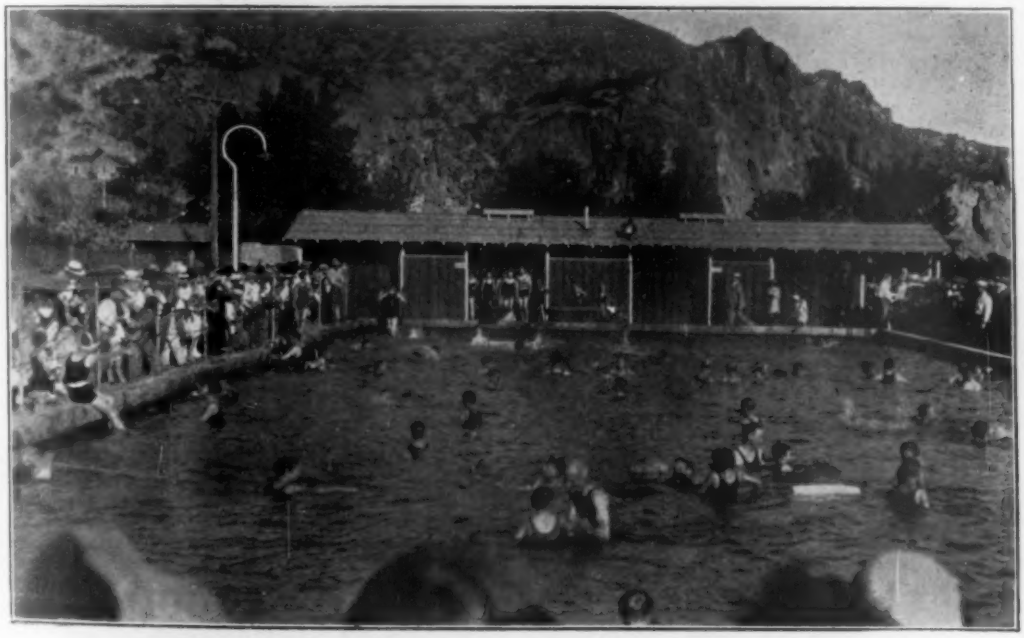
The Clifton hot mineral springs have been used for bathing and drinking for many years past, but they have never been used commercially, although the town has long realized that the springs are one of its most valuable assets. Now that an up-to-date swimming pool and bath-house have been put in operation, the Town Council believes that it will very soon be able to interest capital in the construction and maintenance of a medicinal bath-house and sanitorium. In its search for someone with sufficient capital to undertake such a project, the town is offering every inducement possible, including free mineral water and a free site for the sanitorium.

During the coming summer Clifton expects to acquire another improvement—a wading pool for children. This will be constructed near the municipal swimming pool, so that the youngsters may amuse themselves by paddling while their parents are enjoying the larger and deeper pool.

PETER RILEY,
Mayor.

How Beaumont is Developing Its New Memorial Park

BEAUMONT, TEXAS.—The accompanying plan shows the development decided upon for the Gilbert Memorial Park at Beaumont. This site, 300 x 300 feet, together with a check for $10,000, was a recent donation to the city from the family of the late John N. Gilbert, wealthy pioneer citizen who



THE MUNICIPAL SWIMMING POOL IN CLIFTON, ARIZ., OPENED JUNE 1, 1927

apartment house on a lot 200 x 150 feet. The permit was refused and the case carried by the applicant to the Supreme Court of the state. In a decision doubtless be tested if revised plans are filed for a three-story building on the same site.

was for several years Park Commissioner of Beaumont, the first man to hold the position, and that without pay.

The park plans were prepared by the Superintendent of the Park and Playground Department. The building plans are being drawn by Ben J. Irby, architect. The location of the park on a major residential street with trackage at the rear, and two minor streets along the sides, influenced the design and arrangement so that the most attractive views are from the front, or north side, and the major entrances are at the corners of the same side. The music shell at the rear center is to be of Moorish design, combining storage rooms for music-stands, seats, etc., and likewise a caretaker's tool-room. Toilet-room provisions for men and for women are at opposite ends of the building.

Concrete benches accommodating 600 spectators, with ample room for portable benches to extend the seating capacity to 2,000, gives an outdoor theater for recreation programs, plays, concerts and similar activities. The childrens' play areas on each side of the building are convenient to drinking-fountains and building-facilities. A tennis court in each rear corner carries out the symmetry of the plan with better appearance than if the courts were in series, and the only additional cost is for backstop material.

A large open lawn for games and similar activities is surrounded by tall Washington palms (not shown on plan). A reinforced cement walk for roller-skating borders it, this provision being made because skating is prohibited on sidewalks and there is no other available place for the sport.

Opposite the music shell are a fountain and a semicircular pergola backed by evergreens and flanked by perennial flower-beds. Rose gardens accent the entrances, which are through recessed iron gates set in curved walls. A hedge surrounds the entire area. Cement seats at the ends of the oval are for spectators. A flagstaff at the center of the park interferes with no activity and centers the views from the entrance gates. Adequate space surrounds it for any kind of patriotic or Flag Day ceremonies.

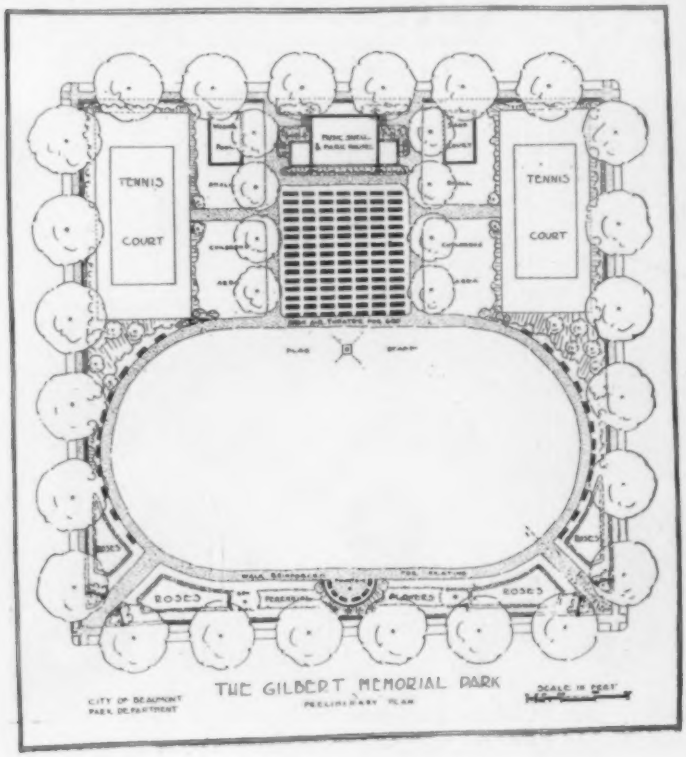
The plan is typical of the combination park-playground recreation centers that are being developed in Beaumont. The plant material is principally broad-leaf evergreen type. Live-oaks provide shade, and the lawn is to be of Bermuda grass. The grading is under way and other construction will be undertaken at once. A park for negroes, the first provided in the city, is being planned, a site having been purchased. Work is progressing on two parks similar to the one described above, which were opened for use before all features were constructed.

FRANK L. BERTSCHLER,
Superintendent, Department of Parks and Playgrounds.

Sacramento's Memorial Auditorium

SACRAMENTO, CALIF.—Dedicated to the memory of the patriots of Sacramento County who made the supreme sacrifice in all wars, Sacramento's beautiful million-dollar auditorium was opened to the public February 22. Since that date there has been scarcely a day that it has not been in use for convention gatherings, musicales, and municipal entertainments of every nature. For the first time in the history of the Sacramento Valley the auditorium made available to its citizens a major grand opera production, which played to capacity houses for three nights and a matinee. Twelve major state conventions were entertained during April and May.

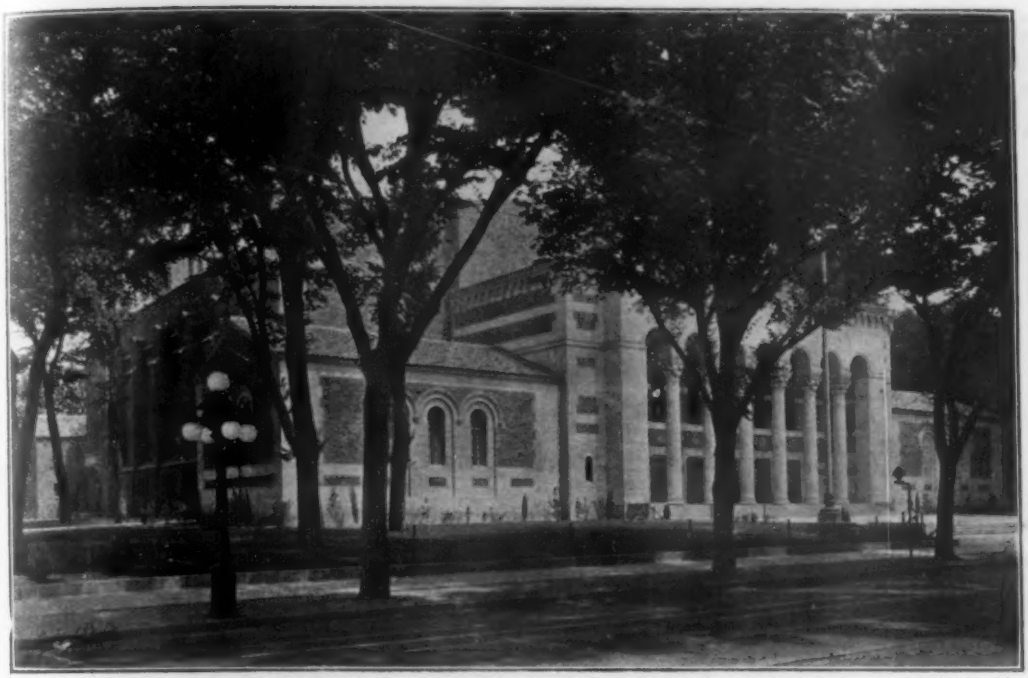
The auditorium is ideally located near Sacramento's business center on a site donated to the city by General John A. Sutter, the city's founder. One of the first school buildings in the state stood for many years on this site, and many prominent Sacramentans, known in state and national affairs, received their schooling there.



Few more beautiful or more perfectly equipped auditoriums are to be found anywhere in the United States than this structure dedicated to the service of Sacramento. It is 264 feet long, 216 feet wide, and 80 feet from main floor to roof. The architecture is of the early Italian style, with the exterior of faced brick, trimmed with stone. The normal seating capacity of the main auditorium is 5,000, which can be increased on extraordinary occasions by 1,200 additional seats.

One of the most notable features is the movable floor, which can be raised to an incline so that every seat in the main arena will have an unobstructed view of the stage. The stage, 40 by 100 feet in size, is one of the largest and best-equipped on the Pacific Coast. Modern in every respect, it will accommo-

THE MUNICIPAL SWIMMING POOL IN CLIFTON, ARIZ., OPENED JUNE 1, 1927



SACRAMENTO'S MILLION-DOLLAR MEMORIAL AUDITORIUM

date the best in theatrical and operatic productions that tour the West.

Among the important items making up the completeness of the equipment is the $35,000 Estey organ and the set of Deagan chimes, costing $11,000, the latter provided through a campaign fostered by the War Mothers.

Heretofore Scaramento has not been in a position to make an effective bid for important state and national conventions. With the auditorium, California's capital city has been made the logical convention center for thousands of delegates.

FRANK C. RUSSELL,
Sacramento Chamber of Commerce.

Reorganized City Plan Commission Undertakes Traffic Survey

BRIDGEPORT, CONN.—After a period of inactivity extending over several years, the City Plan Commission of Bridgeport, which is authorized under city ordinance, has been reorganized by Mayor F. William Behrens with several new members.

The first task assigned by the Mayor to the Commission is that of conducting a thorough traffic survey of the city to determine the best means of alleviating present traffic congestion. This project will shortly be under way. An appropriation of $10,000 to cover the cost of the work has been made by the City Council, and Herbert S. Swan has been engaged by the Commission to conduct the survey.

This traffic study, closely following the adoption of a zoning plan by the city, shows that Bridgeport is awake to the need of a comprehensive plan for city development.

ROBERT A. CROSBY,
Executive Secretary, Bridgeport Chamber of Commerce.

Fire Company Members Help Buy Equipment

ALBION, N. Y.—As a result of the civic pride and generosity of members of the Dye Hose Company, Inc., and the Active Hose Company, Inc., of the Albion Volunteer Fire Department, two new pumps have been installed, at a cost of $3,600, upon the new combination motor fire trucks purchased by the village of Albion last year. The pumps each have a rated capacity of 400 gallons per minute, but when given the Fire Underwriters' test showed 530 gallons per minute in a two-hour test. Besides furnishing the pumps the two companies each contributed $500 toward the $10,000 purchase price of the trucks. This installation gives the Albion department an unusually complete equipment, including, besides the two combination Seagrave pumper, hose, chemical and ladder trucks mentioned above, a 750-gallon Seagrave pumper, an American-LaFrance 55-foot aerial ladder and a one-ton Ford apparatus.

The local volunteers have a plan of paying for the pumps whereby they will not cost the taxpayers anything. Contracts exist between the village of Albion and the townships of Albion, Barre and Gaines, to render service to those townships at all times of the year. A charge of $50 for a run within the three-mile limit is made, and $3 for each additional mile or fraction, one way, is charged. No town has found it necessary to assess more than seven cents per thousand valuation of its property for the fire protection, and thousands of dollars' worth of property has been saved as a result of the service. The towns have found it much cheaper and far more satisfactory to contract for such services handled by experienced firemen, with modern equipment in reserve in case of large fires, than to purchase equipment and or-

FIRE DEPARTMENT APPARATUS, ALBION, N. Y.

ganize "rookies" for the working force. Of the sum received, 50 per cent is turned over to the village of Albion and 25 per cent each is turned over to the two companies providing the service. The two fire companies now will donate their share of such funds until the $3,600 cost of the new pumps is paid, and have turned over the $750 fund due them from 1926 for alarms answered in the towns having contracts. No charge is made by the local companies in answering alarms where they are called to assist the fire departments of Medina, Brockport, Holly and other places in this territory in case of big fires with which the departments of those places find they are unable to cope. Some insurance companies holding risks in the contract towns have contributed annually to the Albion firemen in recognition of their good work in averting heavy losses in these towns.

The Albion fire department has a membership of 110 members in the Dye Hose Company, and about 40 each in the Active Hose Company, Hart Hose Company, and Young American Hook and Ladder Company, making more than 225 volunteers always on duty, besides three paid operators in the municipal building.

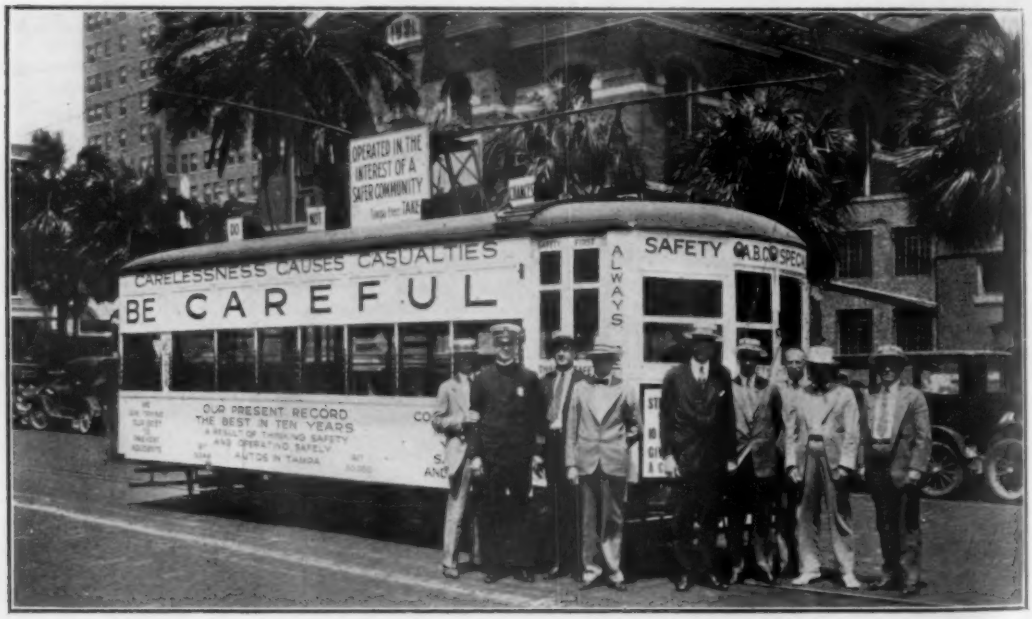
RUSSELL J. WALDO.

Tampa's "Safety Special"

TAMPA, FLA.—In order to stimulate interest in the cause of accident prevention, the Tampa Electric Company is operating daily over its lines the "Safety Special" car of which a photograph is here reproduced. This car is the outcome of the combined thought of the Transportation Department and F. E. Fletcher, General Superintendent of the Company.

The Tampa Electric Company is proud of the fact that its employees have, in the last few months, operated more miles per accident than they have for any like period during the last ten years. This record has been attained through the training and education of the employees along safety lines.

As brought out by one of the signs on the safety



THIS "SAFETY SPECIAL" IS BEING OPERATED IN THE CAUSE OF ACCIDENT PREVENTION IN TAMPA

car, the number of automobiles in Tampa has increased from 3,408 in 1917 to 40,000 in 1927. This fact alone shows the necessity of both autoists and pedestrians exercising more and more care when using the streets of the city. Records show that automobiles are involved in 85 per cent of the accidents occurring on the lines of the Tampa Electric Company.

Anyone interested in the methods of conducting a community safety program is invited to communicate with the Tampa Board of Trade, the Tampa Motor Club, or the Tampa Junior Board of Trade.

A. G. WULFF.

Fine Example of a Modern Police Station

JERSEY CITY, N. J.—The new Seventh Precinct Police Station of the Jersey City Police Department, recently completed at a cost of over $500,000, is one of the most elaborately appointed buildings of its kind in the country. To the rear of the main building, which houses the First Criminal Court, the precinct station, and the city prison, a commodious garage, one story in height, has been erected.

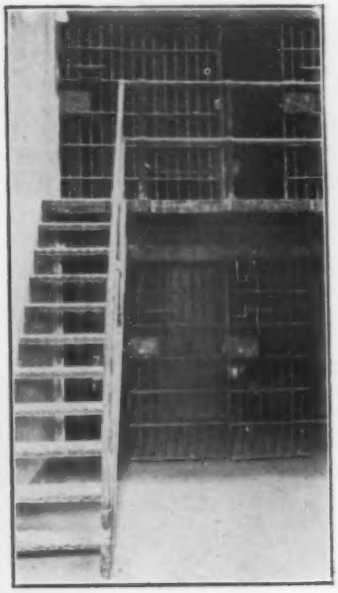
The main building is three stories high, exclusive of the basement, and stands on a base of New Hampshire granite. The first story is of limestone and the remainder of the structure is of buff tapestry brick. The entrances are of Botticino marble, and the lower floors and staircase of pink and grey Tennessee marble. All floors are of either marble or tile.

To the right of the lobby on the main floor is located the desk room of the Seventh Precinct, with several handsomely equipped rooms for the use of officers of the precinct, in the rear. To the left is found the office of the precinct commander, consisting of two rooms, completely furnished in order that the Captain may be comfortably situated if his duties detain him at the station for a protracted period. A detention room for juveniles and other persons whom it is not desired to place in the regular cells, is also on this floor.

On the second floor is found the spacious courtroom of the Criminal Court, furnished in quartered oak. To the rear of the courtroom are the judge's chambers, witnesses' rooms, lawyers' consulting room, and a room for newspaper reporters. On the mezzanine and third floor are groups of cell blocks for male and for female prisoners, with detention rooms occupied by women arrested for the first time on minor charges and by persons held as witnesses in criminal cases. The cells and detention rooms are of the most modern type, white tile being used exclusively in their construction, to assure the maximum of cleanliness for the occupants. The cells are suspended from the roof girders and are so designed as to afford a commanding view of the cells by the keepers at all times. Washroom facilities are provided in each cell, with shower- and tub-baths for each cell block.

The locker-room and reserve rooms for the patrolmen of the precinct, located in the basement, are equipped with every possible facility for convenience and comfort. Here the men may enjoy the use of a billiard and game room, a tier of shower-baths, a miniature gymnasium, and a tailor shop.

JOHN BEGGANS,
Director, Department of Public Safety.



NEW SEVENTH PRECINCT POLICE STATION, JERSEY CITY, AND SOME OF THE CELLS

The Individual Policeman and the Efficient Department

The sum of the generally isolated observations, investigations, and acts of individual policemen constitutes the primary police work of the department. The heart of the business of police administration, therefore, consists in training, stimulating, and directing men in the exercise of good judgment and initiative while on post or assignment in the field.—Raymond B. Fosdick.

Fifteen Years' Progress in Public Health

LYNCHBURG, VA.—This city, with a population of around 39,000, has kept steady pace with the progress of science in the development of its Department of Public Welfare, and with Dr. Mosby G. Perrow as director, has shown in fifteen years exceptional advance in the various paths which lead to improvement of the public health. Especially notable are the decreases in the rates of deaths from tuberculosis and typhoid fever, and in the infant mortality rate.

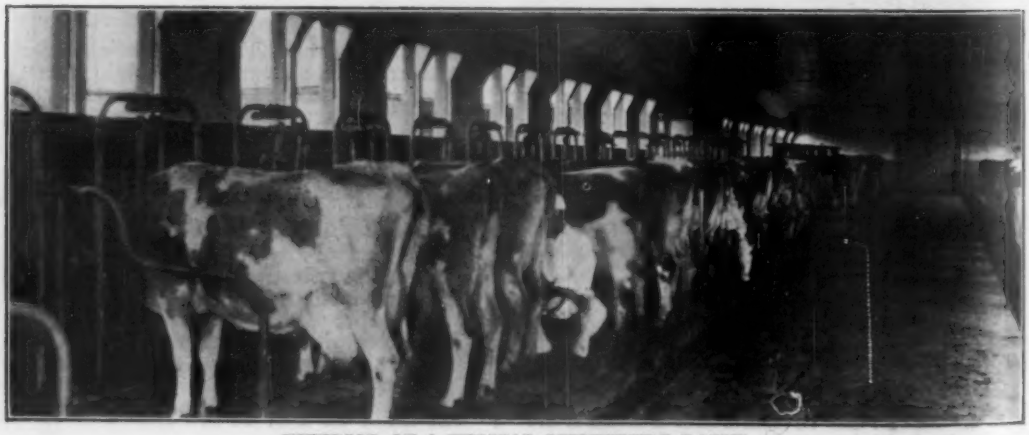
There were four typhoid deaths in 1926, of which two were of non-residents brought when desperately ill to city hospitals, and two of residents of the newly annexed territory. None were residents of the old city, in which the health department has virtually eliminated polluted water and dry closets, and with the latter, flies. In preventing typhoid fever the health department is preventing also the other endemic diseases, until the death of babies from entero-colitis or other intestinal diseases is almost unheard of; the chief cause of infant mortality in Lynchburg now being prematurity and congenital weakness.

In the first years of the health department, from 1911 to 1915 inclusive, the infant death-rate was 143.7 per 1,000 births. In 1921-1925, inclusive, it was 80.2. Last year, there was a slight increase, with a 101.1 rate, showing a segregated increase in the newly annexed territory. The white rate for last year was 85.7, and the negro rate, always higher, was 146.5.

The annexation less than two years ago of eight square miles of uninspected territory, unsewered and without water connections for drinking purposes, has been a problem which the health authorities have been handling with gloves off, securing extension of sewerage first, as the initial steps in protecting its new citizens, and abolishing the dry closet and the polluted well and spring. Clinics have been established, one at the textile mill center, and nurses and city physicians have been spreading education in sanitation and health protection. The annexation of so much uninspected territory has, because of this intensive campaign, caused only slight deviation from the steadily improving health conditions of the city.

In tuberculosis work, Lynchburg has made a tremendous stride in both preventive and curative ways, having been, according to the records of the U. S. Bureau of Animal Industry, the first city in the United States to require tuberculin testing of all herds furnishing milk to residents of the city. It is the first city in the South to have

ONE OF THE DAIRIES THAT SUPPLY MARKET MILK AT LYNCHBURG, VA.



INTERIOR OF A TYPICAL LYNCHBURG DAIRY
All the cows are tuberculin-tested

employed a nurse whose duties lay solely with tuberculosis, its prevention, treatment, and cure. The nurse does preventive work in isolating the patient, establishing sanitoria conditions in the home, which prevents the family from contact, and in educating the underprivileged in the lurking dangers of the disease. She is in constant touch with 239 patients, according to her report for 1926, when the tuberculosis death-rate for Lynchburg was the lowest in its history, 75.3, as against an average of 205.5 in 1911-1915.

The prevalence of tuberculosis is greater among negroes than among white people, as shown in the following figures for 1926, the white population of Lynchburg being over 29,000, as against less than 10,000 negroes: total rate, 75.3; white rate, 47; negro rate, 155.

Lynchburg has the greatest per capital consumption of milk of any city in the state, with 1.463 pints per person, reasons for this being that the milk is made safe by inspection for tuberculosis and for bacteria of all sorts; it is attractive in its taste and butter-fat percentage as well as in its safety and its cleanliness; and there is fine dairy service in Lynchburg. The educational work in milk distribution has been conducted unceasingly, with weighing and measuring tests of babies drinking milk; with free distribution of tickets for short periods to show improvement from drinking milk; and other educational propaganda. There are 390 children receiving free milk in the public schools, with $2,365 available for this work, which is conducted from October to May, the money being secured through the sale of Christmas seals of the Tuberculosis Association.

Inoculation against whooping-cough, scarlet fever, typhoid fever, smallpox and diphtheria helps in the fight for health, and there is water filtration here after the water has traveled 25 miles through redwood pipes from a mountain stream, protected by owning the watershed. The water is tested daily at the bacteriological laboratory.

There are the following clinics, with the number in attendance for the year 1926: general clinic, 3,238 persons; venereal, 1,911 registered cases; prenatal, 332 expectant mothers; children, 1,678 during the year; tuberculosis, 259 patients; eye, ear, nose and throat, 657, many of them operative; and orthopedic, 88 children and adult patients.

In the laboratory last year there were 9,275 biological tests and 5,131 chemical tests, with 659 water investigations, 2,725 for venereal diseases, 570 cultures for diphtheria tests, of sputum for tuberculosis, giving some idea of the sort of work done. The examination for the dread cause of hydrophobia makes immediate administration of the Pasteur treatment possible, and there are tests for poison in court cases, etc.

Lynchburg is finding the vigorous and intelligent work of its health department to be not only a real benefit to its present citizens but an important asset in attracting new residents.

MARTHA RIVERS ADAMS.

Airport Financed by Popular Subscription

SCHENECTADY, N. Y.—This city, a railroad pioneer city in 1831, is to be an air junction point in 1928, as a result of the activity of its Chamber of Commerce. Not only have plans to make this city the "hub" of New York-Montreal and Boston-Buffalo air travel been formulated, but the money has been raised by public subscription and initial steps taken towards the construction of a fully equipped airport. (See front cover of this issue.)

Realizing that commercial aviation is not a thing of the future, but is here now, the Chamber got busy a few months ago. Options were secured on 195 acres of land, comprising, in the opinion of aviation experts, the best site for an airport within a radius of 50 miles.

Our next step was to incorporate a company, known as the Schenectady Airport, Incorporated. Before placing its stock on the market, we looked around for possible sources of revenue which would justify its being offered to the public.

Negotiations were begun with the Colonial Air Transport, a company which has been operating twice daily between New York and Boston during the past year. Arrangements have now been made whereby this organization becomes a partner in our project, and as a result will make Schenectady the terminal of its two proposed air line extensions.

The task of providing the money came next. After securing a sufficient amount, through quiet solicitation, to cover initial expenses, a city-wide campaign to sell $100,000 worth of preferred stock was inaugurated. This money-raising effort has closed successfully with an over-subscription, providing the Chamber with a total of $121,000 towards the financing of its proposed airport, to be known as the Port of Schenectady.

Although the project was well under way when Lindbergh made his successful flight to Paris, the Chamber naturally capitalized upon the publicity attending his feat. "Lindbergh Made His Goal—So Can Schenectady" was our campaign slogan.

Now that the money has been subscribed, no time is being lost in converting our landing field into a real airport. Grading is to be started immediately, permanent runways established, hangars built, and lighting equipment installed. Within a few months we expect to announce to the entire country that Schenectady is on the air map of the United States in a big way, ready to accept its share of the business that is bound to come with the rapid development of the newest means of transportation.

A. J. HORN,
Secretary, Schenectady Chamber of Commerce.

Indianapolis Adopts City Manager Plan

INDIANAPOLIS, IND.—What had been conceded as a foregone conclusion by all parties concerned has been turned into an emphatic reality by the voters of Indianapolis in adopting on June 21, the city manager plan of municipal government by the imposing majority of 44,101 votes; the actual vote as recorded being 53,965 for adoption and 9,864 against adoption of the new form of government. That this result was not unexpected is evidenced by a poll taken among the members of the Indianapolis Chamber of Commerce ten days prior to the referendum; the result of this poll showing 2,250 business men favoring the adoption of the city manager plan against 241 opposing its adoption.

The most striking phase of the campaign waged by a Citizens' Committee of One Thousand was the total absence of organized opposition, the two political camps showing no apparent interest in the outcome of the referendum election. The lack of active opposition was indeed a handicap to the city manager headquarters; for everyone took it for granted that the plan would carry so overwhelmingly that it was with difficulty that sufficient funds and organization could be gathered to-

gether in the short time available for the proper and efficient conduct of the campaign.

The plan of government adopted on June 21, however, will not go into effect until January 1, 1930, owing to the action of the last Indiana Legislature in amending the city manager statute so as to protect the incumbent officials. This condition doubtless had much to do with the indifference of the city administration and local political leaders. However, a suit is now pending on appeal before the Indiana Supreme Court, attacking the constitutionality of this amendment to the city manager law, and if the suit is sustained, a different outlook will immediately project itself before the citizens of Indianapolis.

In discarding the old federal system of local government for the newer city manager plan, Indianapolis finds itself in some danger of going from bad to worse, because of the faultiness of the law creating the city manager plan. No proportional plan of voting is provided for in the election of the seven city commissioners, and unless the citizens are wide awake to the situation, there is considerable danger of the slate-makers carrying the election of city commissioners. However, it is planned to have the city manager law amended in several particulars by the next Legislature in 1929, to include a plan of proportional voting similiar to the plan in use in Cincinnati.

Under the present charter recently adopted, the city of Indianapolis will have seven city commissioners, with one of their number acting as mayor in name only; the city manager to be chosen by the commissioners, with full and complete authority to conduct the affairs of the city without interference by the commissioners or by any political group.

WILLIAM A. BOYCE, Jr.,
City Clerk.

Leading Industries and Chamber of Commerce Cooperate in Community Advertising

TOLEDO, OHIO.—Coincident with a national advertising campaign launched by the Toledo Chamber of Commerce with a full-page advertisement in the *Saturday Evening Post* of May 21, followed by another in the issue of June 18, a successful membership and financial campaign was completed by the organization in which a $140,000 annual budget for three years was oversubscribed by more than $20,000.

The first announcement of the plan to advertise Toledo nationally was made at a meeting of the Toledo Advertising Club, to which members of the Chamber were invited, on Wednesday noon, May 18, the day before the *Post* came out with the first of the series. Up to the time of the announcement, probably not more than 100 people in Toledo knew anything about the plan to advertise this city to the nation, so that it proved to be a great and pleasant surprise when made known.

The idea behind the plan for advertising Toledo is a wholly new method of community advertising. Each page will tell a true human interest story about the success achieved by a leader in industry in Toledo. The series will be known as "Toledo Leadership," which will imply a triple meaning—the leadership of the individual about whom the advertisement is written, the company he represents, and the city of Toledo itself. By this method, it is believed, the campaign will carry more conviction and register a deeper impression than the ordinary run of community advertising. In the end, it will inseparably link the thought of Toledo with the thought of success.

The Chamber of Commerce has every reason to be proud of its leaders in industry and the concerns they represent. This organization has every right to tell about their achievement and to conclude that the advantages of this city played an important part in the success of each one. The remarkable result is that the advertising justifies itself beyond question. It is another evidence of what cooperation will do as applied to advertising the city.

More than this, it should be also borne in mind that an important purpose of the Toledo Chamber of Commerce is to promote the industrial development of this city. This means increasing the business of our present industries as well as endeavor-Toledo. The wide attention that the first advertisewhich the Chamber is doing helps local industries as well as Toledo, it helps both by helping either. The combination is natural and the promotion of the industries already located here is a practical application of the Chamber's desire to promote Todelo. The wide attention that the first advertisement in the series received and its promise of increasing interest as the campaign progresses is expressed in the many letters of commendation that have already been received by the Toledo Chamber of Commerce.

Besides instituting this unusual advertising campaign and placing the Chamber on a sound financial basis with adequate financial income, the organization has played a large part in the accomplishment of several important projects on its Program of Work for Toledo during the past year. Among these are the entry of the city upon the greatest program of street improvement in its history, made possible through the passage at the last election of a special one-mill levy for this purpose; the elimination of the Miami and Erie canal, making possible the construction of a proposed arterial highway over its right-of-way and practically insuring a new Union Depot for the city; the passage of bond issues of important public improvements advocated by the Chamber; and the conduct of an investigation into and an intensive campaign for the city manager form of municipal government with proportional representation, the membership of the Chamber going on record by an overwhelming majority in favor of it, and the City Council passing an ordinance putting the question up to the voters at the next election.

BENJ. H. BONNAR,
Secretary, The Toledo Chamber of Commerce.

Increasing Popularity of the Name "Chamber of Commerce"

THE MUNICIPAL INDEX for 1927 gives the name of the Chamber of Commerce or other leading civic-commercial organization in cities of over 5,000 population throughout the United States, and the name of the Secretary or Manager of each. Of the 1,427 organizations listed, 1,069 have the name "Chamber of Commerce. This is nearly 75 per cent of the total—a much larger percentage than would have been shown in a similar list compiled a few years ago—and indicates an unmistakable trend towards the standardization of the name "Chamber of Commerce" to indicate the leading civic-commercial organization in American cities. Other names used by more than ten organizations are: Board of Trade, 84; Business Men's Association, 49; Commercial Club, 45; Association of Commerce, 34; Board of Commerce, 16; and Merchants' Association, 13.

What to Do with Old Automobile Bodies

LAST month THE AMERICAN CITY published a letter from the Commissioner of Public Works of Oak Park, Ill., requesting information as to methods used by municipalities in disposing of abandoned automobile bodies. Inquiry discloses the fact that this problem is becoming an increasingly serious one in many cities. When dumped on vacant lots, automobile bodies become an eyesore and are objectionable to the esthetics of the locality. When dumped on private or municipal dumping-grounds, they often become a nuisance and a detriment to health. They soon become filled with stagnant water, serving as a breeding-place for mosquitoes and as a harbor for rats.

A survey of how cities are handling this problem has recently been made by the New York State Bureau of Municipal Information. Of the 125 cities investigated, 65 permit old auto bodies to be dumped within the city limits, while 45 prohibit this practice. The remaining cities report no experience with the disposal of this material.

Twelve cities state that automobile bodies are valuable for fill where the contour of the city includes deep valleys or hollows and for reclaiming swamp and river lands. Several cities along the Mississippi and its tributaries report this material as especially valuable for the levees. One city reports that old auto bodies occupy 50 per cent of its city dumping-grounds.

The solution of this problem has been worked out in several ways:

1. Designating this material as trade wastes to be disposed of by owners
2. Taking care of it by junk dealers
3. Using it for fill on deep dumps, river fronts, etc.
4. Burning it and salvaging it as junk. The bodies and fenders may be cut up into busheling and sold to junk dealers at $7.50 per ton
5. Providing private dumps for this material
6. Placing it on city dumps if flattened out
7. Making a charge for privilege of dumping it on municipal dumps

One city (Norfolk, Va.), reports the regulation of this problem by ordinance, the principal sections of which follow:

Be it ordained by the Council of the city of Norfolk:

Section 1.—That it shall be unlawful for any person, firm or corporation to deposit or allow to be deposited or left upon any lot of land within the city of Norfolk, within 500 feet of any church, school, private residence, mercantile house or hospital, any junk, old iron, refuse, automobile bodies, rags or refuse building material; provided, however, that nothing herein shall be construed as prohibiting the owners of low-lying lots from filling such lots, or causing them to be filled, with such material as the Director of Public Works or the Director of Public Welfare shall approve.

Section 2.—That any person, firm or corporation failing to remove any such junk, old iron, refuse, automobile bodies, rags or refuse building material, piled or stored contrary to the provisions of Section 1 of this ordinance, after five days' written notice from the Director of Public Welfare so to do, shall, upon conviction thereof, be fined not less than $20.00 nor more than $50.00. Each day's delay in such removal, after such notice from the Director of Public Welfare, shall constitute a separate offense. If the party responsible for such nuisance shall fail to comply with the notice to remove said material, the city may remove the same and recover the cost thereof from the person responsible therefor.

Adopted by the Council, April 12, 1927.

Increased Attention to Automobile Brake Testing

A SAFETY code for automobile brakes and brake testing, designed for use as an enforcement standard by states, municipalities and other authorities, was approved as the "Tentative American Standard," by the American Engineering Standards Committee on May 16. The sponsors for the new code are the U. S. Bureau of Standards and the American Automobile Association. The object of the code is to promote safety in the operation of motor vehicles as well as practicability of application of the rules. The Bureau of Standards (U. S. Department of Commerce, Washington, D. C.), will calibrate testing equipment for state, municipal and other authorities, if called upon, and has expressed willingness to referee methods of tests. The American Engineering Standards Committee, 29 West 39th Street, New York, will have copies of the code for distribution, at cost, to those interested.

The code would require all vehicles to be equipped with independently operated brakes (two means of operating brakes), except as to electric commercial vehicles purchased prior to adoption of the code, and except as to motorcycles. A special provision is made for electrical brakes and at least one hand brake must be provided, at all times capable of restraining the vehicles. Automobiles weighing 6,000 pounds or less, and passenger busses of any weight, are required to have foot brakes capable of stopping the car within 50 feet from 20-mile speed and hand brakes to stop it in 75 feet from a 20-mile speed, both on dry, hard roads. For vehicles above that weight there is proposed stoppage within 50 feet from 20-mile speed on simultaneous application of two brakes, or within 75 feet by foot brake or hand brake alone. Two years' grace would be allowed for designated brake equipment requirements in this class.

Brake inspection campaigns, designed to reduce the number of automobile accidents due to defective control apparatus, have been staged in scores of states, cities and towns, and, according to the Asbestos Brake Lining Association, which assists in conducting these campaigns, the results have been so gratifying that the sponsors have decided to repeat the performance either every six months or annually. These drives usually are launched under the auspices of the State Motor Vehicle Registrar, police commissioner, safety council, automobile club, chamber of commerce or automotive trade association, and are naturally most effective if all of these interests support them. Commissioner O. B. Towne of the above Association states that campaigns were conducted last year in over one hundred cities and it is estimated by those putting on the campaigns that approximately 287,000 cars were tested. The Association has prepared plans for such campaigns, which it will send, free of charge, together with posters, stickers, steering-wheel tags and brake-inspection certificates, to any committee which represents a city-wide movement for brake testing and traffic safety. Its address is 578 Madison Ave., New York.

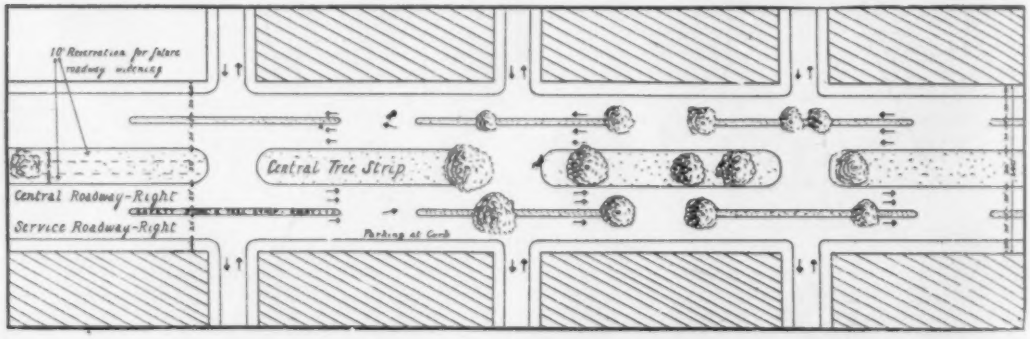
A Thoroughfare Plan for Providence

THE Legislature of the state of Rhode Island has recently passed, and the Governor has signed, "An Act Authorizing the City of Providence to Create a Thoroughfare Plan Commission and Defining Its Duties." This act, which takes effect at once, enables the comprehensive thoroughfare plan which has been worked out for Providence by Robert Whitten, city planning consultant, New York City, to take form in actual construction. It provides for the immediate appointment of a board that will prepare the detail plans and supervise construction. Each project as prepared will have to receive the approval of the Council, with provision for its financing. The plan as prepared is now the official plan of the city, and deviations from it can only be made on recommendation of the Board and approval of the Council. The latter is authorized to make a special tax levy for the purpose of the Plan, and can issue bonds for property and permanent construction, but not for street surfacing. Excess condemnation is authorized.

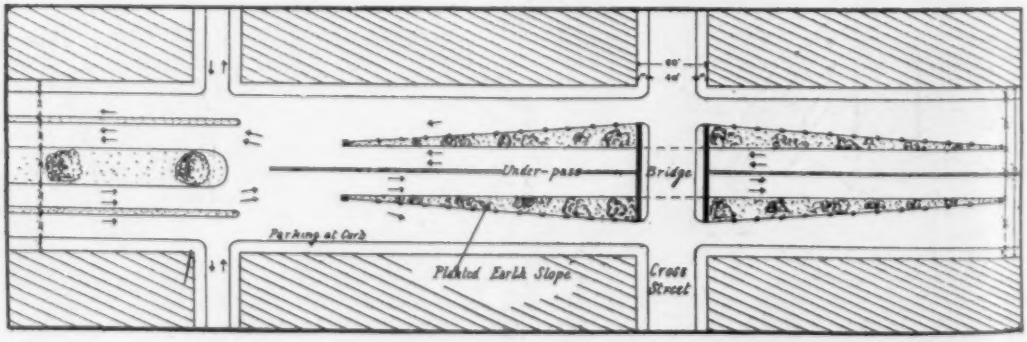
To have secured traffic relief in Providence in the ordinary way would have required a wholesale widening of present traffic streets, the cost of which undertaking would have been staggering. A great increase in traffic—conservatively estimated at doubling in ten years and almost quadrupling in twenty-five years, outside the congested district—had to be provided for, nevertheless; and after much consideration the plan of having a few trunk-line express roads, each with the capacity of from four to six ordinary streets, was decided upon. To secure this great capacity with safety, convenience and true economy, rights-of-way having widths of from 120 to 140 feet are essential; these make possible on each route a central express road for through traffic and a service road on each side for local traffic, together with the separation of road grades between the express highway and important cross-streets. The cost of such highways, great as it is, is much less than the combined cost of from four to six ordinary 80-foot streets having capacity for an equal number of vehicles per day. The express highways also provide greater safety, convenience and speed, and hence a very notable saving in time and money to vehicle owners besides. They will be made beautiful thoroughfares besides by attractive planting of the strips separating the local and express traffic and the two streams of the latter as well.

A twelve-year construction program is a part of the plan, and a financial program for the same period is set forth, involving the raising and expenditure of $40,875,000. Of this, $26,208,000 is expected to be provided by long-term bonds, $12,071,000 from current revenues, and $2,596,000 from special assessments. The principle of excess condemnation can also be used to a limited extent to secure to the city the special increment in value resulting from an improvement, as well as to secure a better and more attractive building-up of the new frontages.

Besides the provision for express roads and parkways and for the definite construction and financial program, the plan is notable for its very complete by-passing of through traffic around the central congested district. It has met with almost universal public endorsement, having been approved by all the leading civic organizations as well as both branches of the City Council.



TYPICAL PLAN OF A 140-FOOT EXPRESS ROAD



TYPICAL PLAN FOR AN UNDERPASS ON AN EXPRESS ROAD

Too Many Heads in County Government

TWO heads are better than one—when deliberation on many sides of a problem is desired, when legislation is to be decided upon.

One head is better than two when a decision is to be carried out, when execution or administration and not deliberation is required.

Two heads for administration are bad, three are impossible, a dozen are ruinous.

With the foregoing as a text, the Public Service Institute of Kansas City, Mo., publishes in a recent issue of *Kansas City's Public Affairs* the accompanying cartoon, with a strong plea for the application of sound principles to the patchwork of conflicting powers and responsibilities that comprises the government of most American counties. With special reference to conditions in its own county, the Institute says in part:

"Jackson County has an area of about 600 square miles and a population of 400,000. Included in it is Kansas City with its 375,000 people. The county government maintains all the services of government which relate to the entire county, and in some instances only to that part of the county outside of Kansas City.

"Jackson County has many little governments loosely coordinated by the county court. Each is headed by an elected officer or body with complete authority over his own office, except that the county court levies the taxes for its operation and pays the bills.

"Following is the list of these little governments: circuit court, clerk of the circuit court, sheriff, prosecuting attorney, coroner, probate court, public administrator, county court, county clerk, county assessor, county surveyor, county collector, county treasurer, and county recorder.

"Included in the activities of county government are construction and maintenance of rural roads; various welfare activities such as maintenance and operation of the several county homes and institutions; care of insane; probation and parole; operation of the courts and other judicial offices; assessing, levying, and collecting of taxes; recording of deeds, and a number of other activities.

"To provide these services costs $3,000,000 a year, by no means unimportant. Its organization should be on a business basis headed by responsible officials, using the best methods of handling finances, appointing officials, and operating departments.

"Actually it is organized on the most unbusinesslike basis that can be imagined. There are no central responsible officials; there is no budget system; the accounting is inadequate to give complete and accurate information; there is practically no financial control of the independent offices; and the methods used in the departments are very often antiquated and inefficient."

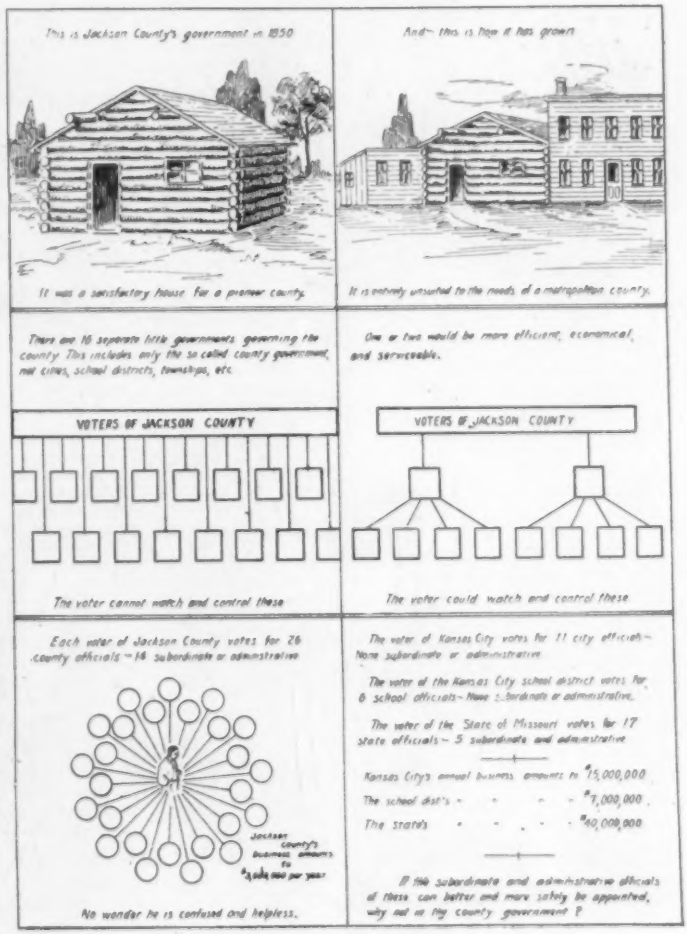
Two Pamphlets on County Government

(*Obtainable from the National Municipal League, 261 Broadway, New York*)

"The County Manager Plan"—By R. S. Childs. 12 pp. A brief, readable explanation of the advantages of the county manager idea, with a review of the efforts to adopt it.

"Ramshackle County Government"—28 pp. An exposé of the current condition of county government and its stage-coach organization.

Ramshackle County Government


This is Jackson County's government in 1850
It was a satisfactory house for a pioneer county.
And— this is how it has grown
It is entirely unsuited to the needs of a metropolitan county.
There are 16 separate little governments governing the county. This includes only the so called county government, not cities, school districts, townships, etc.
VOTERS OF JACKSON COUNTY
The voter cannot watch and control these
One or two would be more efficient, economical, and serviceable.
VOTERS OF JACKSON COUNTY
The voter could watch and control these
Each voter of Jackson County votes for 26 county officials—16 subordinate or administrative
Jackson County's business amounts to $ [illegible] per year
No wonder he is confused and helpless.
The voter of Kansas City votes for 11 city officials—None subordinate or administrative
The voter of the Kansas City school district votes for 6 school officials—None subordinate or administrative
The voter of the State of Missouri votes for 17 state officials—5 subordinate and administrative
Kansas City's annual business amounts to $15,000,000
The school dist's " " " $7,000,000
The state's " " " $40,000,000
If the subordinate and administrative officials of these can better and more safely be appointed, why not in my county government?

Standard Municipal Contract Forms

A Joint Report by the Committees of the American Society for Municipal Improvements and the Associated General Contractors of America

AT the last two annual meetings of the American Society for Municipal Improvements, the Committee on Municipal Contract Forms has presented reports. Attached to the first report was a suggested form of contract which had been prepared after a detailed study of the forms in use in a number of the larger American cities. This report, with the attached form, was printed and offered for discussion. Shortly thereafter the members of this committee came in contact with the work being done by the Joint Conference on Contract Forms, in the work of which the Associated General Contractors of America had been particularly active. During the year following, the Committee had available the forms of general engineering contracts proposed by the Joint Conference and also secured material assistance in its work from the Engineer-Secretary of the Conference.

At the meeting of the American Society for Municipal Improvements in Des Moines, Iowa, in 1925, the Committee of the American Society for Municipal Improvements presented its second report. This was accompanied by an entirely new draft of a proposed contract form which closely paralleled the engineering contracts promulgated by the Joint Conference. On instructions of both of the national societies, the committees on municipal contract forms of the two organizations held a joint conference in Chicago on March 18, 1926. At this session the form of contract document was studied in minute detail. Numerous revisions and simplifications were agreed to, and the resulting document was accepted by all members of both committees.

The final vote of the membership of the American Society for Municipal Improvements by letter ballot in 1927 was 111 in favor of adoption to 3 against adoption.

The Committee of the American Society of Municipal Improvements is composed of E. S. Rankin, Engineer, Bureau of Sewers, Newark, N. J.; D. E. Parker, City Engineer, Madison, Wis.; George W. Tillson, Consulting Engineer, Lagrange, Ill.; Harrington Place, Detroit, Mich.; Robert Cramer, Consulting Engineer, Milwaukee, Wis.; John B. Hittell, Street Engineer, Chicago, Ill.; George C. Warren, President, Warren Brothers Co., Boston, Mass.; and W. W. Horner, Chief Engineer, Sewers and Paving, St. Louis, Mo., Chairman. It does **not** recommend that the contract form proposed be adopted verbatim by any municipality. The form is intended for use as a guide both as to general order of subject matter and as to the general intent of the principal clauses. For use in any particular municipality, it should be carefully checked over and revised to conform with local and state laws, and in many instances the General Conditions may properly be modified in order to cover more completely the outstanding details of the particular project.

MUNICIPAL CONTRACT FORM

For the construction of.....
.....
the city of.....together with all appurtenances and supplemental work.

AGREEMENT

THIS AGREEMENT, made this..... day of.....in the year Nineteen Hundred and..... by and between.....
.....
.....hereinafter called the Contractor and (1)..... The City of.....
.....hereinafter called the City,

WITNESSETH:

THAT WHEREAS, the.....(2) of the said City of .....(1) under the provisions of ..... (3) approved ....., 19....., and by virtue of authority vested in the said.....(2) has awarded to the Contractor the work of performing certain construction, NOW THEREFORE, the Contractor and the City for the considerations hereinafter named agree as follows:

Article 1. **Scope of the Work.** The Contractor shall furnish all of the materials, tools, equipment, labor and everything necessary to perform, and shall perform in accordance with the plans, specifications and terms of this contract the work of (4).....
.....

Deductions for not Completing on Time. If the contract work is not fully completed according to the terms of the contract within the time limit herein stipulated, the Contractor shall pay the City, not as penalty but as liquidated damages, a sum equal to (5)..... dollars per day for each day elapsing between expiration of such time limit and the date of full completion; provided, however, that the time limit herein stated is subject to extension without payment of damages as provided in Article 18.

Where any deductions from or forfeitures of payment in connection with the work of this contract are duly and properly declared or imposed against the Contractor, in accordance with the terms of this contract, state laws or ordinances of the City, the total amount thereof may be withheld from any money whatsoever due or to become due the Contractor under the contract, and when deducted shall be deemed and taken as payment in such amount.

NOTES: (1) Insert name of municipality. (2) Insert title of contracting board, council, etc. (3) Insert specific authority for contract such as—Ordinance No. 1997. (4) Insert general statement of character and scope of work. (5) Should be filled in prior to bidding so that proposals of all bidders are submitted on the same basis.

Article 2. **Time of Completion.** Construction work must begin within (5)..... days after written notice to do so shall have been given to the Contractor, and shall be carried on at a rate to secure its full completion within (5)..... calendar days thereafter, the rate of progress and the time of completion being essential conditions of this Agreement.

Article 3. **Approximate Quantities and Unit Prices.** The City shall pay the Contractor for all work included in and completed according to this contract, the prices shown in the following schedule of quantities; but it is understood that the quantities shown are only approximate and may not represent the actual amount of work to be performed.

APPROXIMATE QUANTITIES AND UNIT PRICES

Item of work	Quantity	Unit Price	Amount
.....			
.....			
.....			

Article 4. **Progress Payments.** On or before the ..... day of each month the City shall pay the Contractor (6).....per cent of the value of all work performed less the aggregate of previous payments. Such value shall be estimated by the Engineer on the basis of contract prices and the quantity of work performed. Authorized extra work shall be included in progress payments.

Unless contrary to laws or ordinances (7).....per cent of the value of materials as estimated by the Engineer and suitably stored for the work shall also be included in progress payments. (8)

NOTES: (6) In most cities it is customary to use 85 or 90 per cent. (7) Some cities retain different percentages on materials delivered and on work performed. (8) If it is deemed inadvisable to pay for materials delivered, the second paragraph of Article 4 may be deleted.

Article 5. **Acceptance and Final Payment.** When the work provided for under this contract has been fully completed in accordance with the terms thereof, a final estimate showing the amount of such work shall be prepared by the Engineer and filed with the City and with the Contractor within thirty days after the date of completion. The final estimate shall be accompanied by a certificate of acceptance issued by the Engineer and stating that the work has been fully completed to his satisfaction in substantial compliance with the contract.

From the final payment shall be retained all moneys expended by the City according to the terms of this contract and thereunder chargeable to the Contractor, all moneys payable to the City as liquidated damages and all deductions provided by the contract, state laws or ordinances of the City.

Payment of the final estimate and acceptance of such payment by the Contractor shall release the City from all claims of and liabilities to the Contractor in connection with this contract.

Article 6. **The Contract Documents.** The general and special conditions of this contract, the specifications, the plans, drawings and Bond, together with this Agreement, form the contract. The plans and drawings are as fully a part of this contract as if hereto attached.

The following is an enumeration of the plans, which are entitled:

....
....
....
....

IN WITNESS WHEREOF the parties hereto have executed this Agreement, the day and year first above written.

GENERAL CONDITIONS

Index to the Articles of the General Conditions

1. Definitions
2. Execution, Correlation and Intent of Documents
3. Detail Drawings and Instructions
4. Copies of Drawings Furnished
5. Order of Completion
6. Drawings and Specifications on the work
7. No other Interested Parties
8. Contractor's Understanding
9. Materials, Appliances, Employees
10. Royalties and Patents
11. Surveys, Permits and Regulations
12. Protection of Work and Property
13. Inspection of Work
14. Superintendence; Supervision
15. Changes in the Work
16. Extra Work and Payment Therefor
17. Deductions for Uncorrected Work
18. Delays and Extension of Time
19. Removal of Improper Material
20. Suspension of Work
21. The City's Right to Do Work
22. The City's Right to Terminate Contract
23. Contractor's Right to Stop Work or Terminate Contract
24. Removal of Equipment
25. Use of Completed Portions
26. Payments Withheld
27. Contractor's Liability Insurance
28. Indemnity
29. Unpaid Wages
30. Indemnity Bond
31. Damages
32. Lands for Work
33. Assignment
34. Rights of Various Interests
35. Separate Contracts
36. Subcontracts
37. Points and Instructions
38. Engineer's Status
39. Engineer's Decisions
40. Review of Decisions
41. Cleaning Up

Article 1. **Definitions.** (a) The contract documents consist of the Agreement, the General and Special Conditions of the Contract, the Bond, the Plans, Drawings and Specifications, including all modifications thereof incorporated in the documents before their execution. These form the contract.

(b) The City, and the Contractor are those mentioned as such in the Agreement.

(c) Wherever in this contract the word Engineer is used, it shall be understood as referring to the Engineer in charge of the work, acting personally or through an assistant duly authorized in writing for such act by the Engineer.

(d) Any notice to be given by the City to the Contractor under this contract shall be deemed to be served if the same be delivered to the man in charge of any office used by the Contractor or to his Superintendent or in their absence, to a foreman at or near the work, or deposited in the post office, postpaid, addressed to the Contractor at his last known place of business.

(e) The term Subcontractor, as employed herein, includes only those having a direct contract with the Contractor, and it includes one who furnishes material worked to a special design according to the plans and specifications of this work, but does not include one who merely furnishes material not so worked.

(f) The term "work" of the Contractor or Subcontractor includes labor or materials or both, equipment, transportation or other facilities necessary to complete the contract.

(g) All time limits stated in the Contract Documents are of the essence of the contract.

(h) The words "plans" and "drawings" are used synonymously in this contract.

Article 2. **Execution, Correlation and Intent of Documents.** The contract documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work. It is not intended, however, that materials or work not covered by or properly inferable from any heading, branch, class or trade of the specifications shall be supplied unless distinctly so noted on the drawings. Materials or work described in words which so applied have a well-known technical or trade meaning shall be held to refer to such recognized standards.

Article 3. **Detail Drawings and Instructions.** The Engineer shall furnish, with reasonable promptness, additional instructions, by means of drawings or otherwise, necessary for the proper execution of the work. All such drawings and instructions shall be consistent

with the contract documents, true developments thereof, and reasonably inferable therefrom.

Article 4. **Copies of Drawings Furnished.** Unless otherwise provided in the contract documents, the City will furnish to the Contractor, free of charge, all copies of drawings and specifications reasonably necessary for the execution of the work.

Article 5. **Order of Completion.** The Contractor shall complete any portion or portions of the work in such order of time as has been stated by instructions to bidders prior to the opening of bids or in such order as the Engineer may declare necessary by reason of an emergency.

Article 6. **Drawings and Specifications on the Work.** The Contractor shall keep one copy of all drawings and specifications on the work, in good order, available to the Engineer and to his representatives.

Article 7. **No Other Interested Parties.** The Contractor declares that the only persons interested in this contract as principals are therein named as such; that no official of the municipality and no person acting for or employed by the municipality is directly or indirectly interested in this bid, or in any contract which may be made under it, or in any expected emolument or profit to arise therefrom; that his bid and his contract are made in good faith, without fraud, collusion or connection with any other person bidding for the same work. (9)

Article 8. **Contractor's Understanding.** It is understood and agreed that the Contractor has, by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and all other matters which can in any way affect the work under this contract.

No official, officer or agent of the municipality is authorized to make any representations as to the materials or workmanship involved, or the conditions to be encountered, and the Contractor agrees that no such statement or the evidence of any document or plan, not a part of this contract, shall constitute any grounds for claim as to conditions encountered. No verbal agreement or conversation with any officer, agent or employee of the City, either before or after the execution of this contract, shall affect or modify any of the terms or obligations herein contained.

Article 9. **Materials, Appliances, Employees.** Unless otherwise specified all materials shall be new and both workmanship and materials shall be of a good quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials. The Contractor shall at all times enforce strict discipline and good order among his employees, and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him.

If any person employed on the work shall refuse or neglect to obey the directions of the Engineer, or his duly authorized agents, as to workmanship, character of the work or quality of materials, or be so incompetent, disorderly or unfaithful as to endanger the proper fulfillment of this contract, he shall upon the request of said Engineer be at once discharged and not again employed on any part of the work.

Article 10. **Royalties and Patents.** Unless otherwise specified the Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the City harmless from loss on account thereof except that the City shall be responsible for all such loss when a particular patented process or product is specified, unless the specifications state that the article specified is patented.

Article 11. **Surveys, Permits and Regulations.** The City shall make all surveys unless otherwise provided. Permits and licenses of a temporary nature necessary for the prosecution of the work shall be secured and paid for by the Contractor.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. The Contractor is required to observe all laws and ordinances relating to the obstructing of streets, maintaining signals, keeping open passageways and protecting them where exposed to danger, and all general ordinances affecting him or his employees or his work hereunder in his relation to the City, or any person, and also generally to obey all laws and ordinances controlling or limiting the Contractor while engaged in the prosecution of the work under this contract. If the Contractor observes that the drawings and specifications are at variance with laws and regulations, he shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted as provided in the contract for changes in the work. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules or regulations, and without such notice to the Engineer, he shall bear all costs arising therefrom.

Article 12. **Protection of Work and Property.** The Contractor must protect and support all water and gas pipes or other conduits and all railway tracks, buildings, walls, fences or other properties which are liable to be damaged during the execution of his work. He shall take all reasonable and proper precautions to protect persons, animals and vehicles of the public from injury, and wherever necessary shall erect and maintain a fence or railing around any excavation, and place a sufficient number of red lights about the work and keep them burning from twilight until sunrise; and shall employ one or more watchmen as an additional security when ever they are needed. He must, as far as practicable and consistent with good construction, permit access to private and public property and leave fire hydrants and catch basins free from encumbrances.

Article 13. **Inspection of Work.** The Engineer and his representatives shall at all times have access to the work wherever it is in preparation or progress and the Contractor shall provide proper facilities for such access and for inspection.

The work is to be done under the supervision of an inspector or inspectors, whose duties will be to see that the requirements of the specifications are carried out, but their presence or absence is in no manner to be presumed to relieve in any degree the responsibility or obligations of the Contractor.

If the specifications, the Engineer's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Engineer timely notice of its readiness for inspection, and if the inspection is by another authority than the Engineer, of the date fixed for such inspection. Inspections by the Engineer shall be promptly made, and where practicable at the source of supply. If any work should be covered up without approval or consent of the Engineer it must, if required by the Engineer, be uncovered for examination at the Contractor's expense.

The Contractor shall remove, rebuild and make good at his own cost any work which is found to be defectively executed. Any failure to condemn work at the time of its construction shall not be construed as an acceptance of defective work. If any doubt exists as to the character of such work, it must on order of the Engineer be taken up. If found to be imperfect, it must be made good without additional compensation; if satisfactory, the actual cost, plus fifteen (15) per cent, of removing and replacing, shall be paid to the Contractor.

Article 14. **Superintendence: Supervision.** The Contractor must at all times have an authorized representative on the work to whom orders can be given, this representative to have full authority to carry out all orders given by the Engineer, and shall keep on the work, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Engineer.

The superintendent shall represent the Contractor in his absence and all directions given to him shall be as binding as if given to the Contractor. Directions shall be confirmed in writing upon written request in each case. The Contractor shall give efficient supervision to the work, using his best skill and attention.

During the construction and maintenance period of the work of this contract, any orders given by the Engineer or his representatives to the manager, superintendents, or foreman of the Contractor in the absence of the Contractor shall have the same force and effect as if given to the Contractor.

If the Contractor, in the course of the work, finds any discrepancy between the plans and the physical conditions of the locality, or any errors of omissions in plans or in the layout as given by points and instructions, it shall be his duty to immediately inform the Engineer in writing, and the Engineer shall promptly verify the same. Any work done after such discovery, until authorized, will be done at the Contractor's risk.

Neither party shall employ or hire any employee of the other party without the other party's consent.

NOTE: (9) Where not required by law or local regulations, Article 7 may be omitted.

Article 15. **Changes in the Work.** The Engineer shall have the right to make alterations in the line, grade, plan, form or dimensions of the work herein contemplated, either before or after the commencement of the work and without notice to the sureties. If such alterations diminish the quantity of work to be done, they shall not constitute a claim for damages for anticipated profits for the work dispensed with, but when the reduction in amount is a material part of the work contemplated, the Contractor shall be entitled to compensation as determined by the Engineer for overhead and equipment charges which he may have incurred in expectation of the quantity of work originally estimated, unless specifically provided herein; if they increase the amount of work, the increase shall be paid according to the quantity of work actually done and at the price established for such work under this contract excepting where, in the opinion of the Engineer, the Contractor is clearly entitled to extra compensation.

Article 16. **Extra Work and Payment Therefor.** When the Contractor is directed to perform work and furnish materials which are neither shown upon the plans, nor reasonably implied in the specifications, and for which no price has been named in the agreement for work or materials of like character, such work and materials shall be considered as extra work, and the Contractor shall perform the same to the satisfaction of the Engineer.

The value of any such extra work or change shall be determined in one or more of the following ways:

(a) By estimate and acceptance in a lump sum.
(b) By unit prices named in the contract or subsequently agreed upon.
(c) By cost and percentage or by cost and a fixed fee.

If none of the above methods is agreed upon, the Contractor, provided he receives an order as above, shall proceed with the work. In such case and also under case (c), he shall keep and present in such form as the Engineer may direct, a correct account of the net cost of labor and materials, together with vouchers. In any case, the Engineer shall certify to the amount, including reasonable allowance for overhead and profit, due to the Contractor. No extras of any kind will be allowed unless ordered in writing by the Engineer.

No verbal order or suggestion given by any employee of the City shall be construed as authorizing or laying the basis for any claim on the part of the Contractor for extra compensation, either for extra work or materials or for damages because of the Contractor's compliance therewith. Such verbal orders and suggestions as to the performance of the work may be freely given, but in case they appear to the Contractor to involve extra work, for which he should receive extra compensation, he must make written demand for a written order for such extra work. In case of dispute as to what does or does not constitute extra work, a decision will be made by the Engineer.

Article 17. **Deductions for Uncorrected Work.** If the Engineer deems it inexpedient to correct work injured or done not in accordance with the contract, an equitable deduction from the contract price shall be made therefor.

Article 18. **Delays and Extensions of Time.** If the Contractor be delayed at any time in the progress of the work by any act or neglect of the City or of its employees, or by any other contractor employed by the City, or by changes ordered in the work, or by strikes, lockouts, fire, unusual delay in transportation, unavoidable casualties or any causes beyond the Contractor's control or by any causes which the Engineer shall decide to justify the delay, then the time of completion shall be extended for such reasonable time as the Engineer may decide. (10)

No such extension shall be made for delay occurring more than seven days before claim therefor is made in writing to the Engineer. In the case of a continuing cause of delay, only one claim is necessary.

If no schedule or agreement stating the dates upon which drawings shall be furnished is made, then no claim for delay shall be allowed on account of failure to furnish drawings until two weeks after demand for such drawings and not then unless such claims be reasonable.

This article does not exclude the recovery of damages for delay by either party under other provisions in the contract documents.

Article 19. **Removal of Improper Material.** All materials to be provided by the Contractor shall be of the best quality, and if the Contractor shall bring or cause to be brought on the work materials which do not conform to the requirements of this contract, the Engineer shall order the same to be removed forthwith, and in case of the neglect or refusal of the Contractor or those employed by him to remove such materials, to cause the same to be removed at the expense of the Contractor and to deduct the cost of such removal and all other expenses incident thereto from the amount which may be due to the Contractor on this contract. And in case of the violation of this provision the amount of costs and expenses shall be deducted by the Engineer from the final, or any other estimate of the amount due to the Contractor on this contract.

Article 20. **Suspension of Work.** The City may at any time suspend the work, or any part thereof, by giving ..... days' notice to the Contractor in writing. The work shall be resumed by the Contractor within ten (10) days after the date fixed in the written notice from the City to the Contractor so to do. The City shall reimburse the Contractor for expense incurred by the Contractor in connection with the work under this contract as a result of such suspension, unless such suspension is ordered to secure compliance with the terms of this contract.

But if the work, or any part thereof, shall be stopped by the notice in writing aforesaid, and if the City does not give notice in writing to the Contractor to resume work at a date within ..... of the date fixed in the written notice to suspend, then the Contractor may abandon that portion of the work so suspended and he will be entitled to the estimates and payments for all such work on the portions so abandoned, if any.

Article 21. **City's Right to do Work.** In case the Contractor fails to prosecute any portion of the work embraced in this agreement at a rate of progress satisfactory to the Engineer, or in a manner not in compliance with the specifications or plans, thereupon the Engineer shall, in writing, notify the Contractor to remove all cause of complaint within a time specified in such notice. If the Contractor fails so to do, the Engineer may proceed to complete such portion of the work in such manner as he may determine. All cost of such work shall be deducted from any money due, or which may become due the Contractor under this contract.

Article 22. **City's Right to Terminate Contract.** If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Engineer, or should cease operations under this contract at any time for the space of ten (10) days, or otherwise be guilty of a substantial violation of any provision of the contract, then the City upon the certificate of the Engineer that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor and his surety seven days' written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools and appliances thereon and finish the work by whatever method it may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expense of finishing the work, including compensations for additional managerial and administrative services, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the City. The expense incurred by the City, as herein provided, and the damage incurred through the Contractor's default shall be certified by the Engineer.

Article 23. **Contractor's Right to Stop Work or Terminate Contract.** If the work should be stopped under an order of any court, or other public authority, for a period of three months, through no act or fault of the Contractor or of anyone employed by him, or if the Engineer should fail to issue any estimate for payment within ..... days after it is due, or if the City should fail to pay the Contractor within a reasonable time any sum certified by the Engineer, then the Contractor may, upon seven days' written notice to the City and the Engineer, stop work or terminate this contract and recover from the City payment for all work executed and any loss sustained upon any plant or materials and reasonable profit and damages.

Article 24. **Removal of Equipment.** In the case of annulment of this contract before completion from any cause whatever, the Contractor, if notified to do so by

NOTE: (10) Use name of official having authority, if not Engineer.

By Long Odds the Favorite Mower

The outstanding superiority of Coldwell Model "L" Motor Mower and Roller (Pictured above) is proved by its widespread adoption by park superintendents and city officials throughout the United States.

This decisive preference for Model "L" is based on a matchless combination of efficiency, economy and dependability *plus* freedom from mechancial trouble through the years. Its extremely low operating cost is a revelation.

The name "Coldwell" on a lawn mower is justification for its purchase and insurance of satisfaction at one and the same time. Literature on request.

The Coldwell Electric Lawn Mower (*pictured below*) is as *easy to operate as a vacuum cleaner.* Plugs in on any electric outlet. Nothing to do but steer it. Cuts a 21-inch swath. Just the machine for boulevard parkways. Booklet on request.

Hand
Horse

COLDWELL

Gasoline
Electric

DEPENDABLE LAWN MOWERS

COLDWELL LAWN MOWER CO., NEWBURGH, N. Y., U. S. A.

Do you mention THE AMERICAN CITY when writing? Please do.

the City, shall promptly remove any part or all of his equipment and supplies from the property of the City, failing which the City shall have the right to remove such equipment and supplies at the expense of the Contractor.

Article 25. **Use of Completed Portions.** The City shall have the right to take possession of and use any completed or partially completed portion of the work notwithstanding the time of completing the entire work or such portions may not have expired. If such prior use increases the cost of or delays the work, the Contractor shall be entitled to such extra compensation, or extension of time, or both, as the Engineer may determine.

Article 26. **Payment Withheld.** The City may withhold or, on account of subsequently discovered evidence, nullify the whole or a part of any certificate to such extent as may be necessary to protect itself from loss on account of

(a) Defective work not remedied.
(b) Claims filed against the Contractor or reasonable evidence indicating probable filing of claims.
(c) Failure of the Contractor to make payments properly to subcontractors or for material or labor.
(d) A reasonable doubt that the contract can be completed for the balance then unpaid.
(e) Damage to another Contractor.

When the above grounds are removed payments shall be made for amounts withheld because of them.

Article 27. **Contractors' Liability Insurance.** Except as otherwise provided by law, the Contractor shall maintain such insurance as will protect him from claims under workman's compensation acts and from any other claims for damages for personal injury, including death, which may arise from operations under this contract whether such operations be by himself or by any subcontractor or anyone directly or indirectly employed by either of them. Satisfactory evidence of such insurance shall be filed with the Engineer, if he so require, and shall be subject to his approval for adequacy of protection.

Article 28. **Indemnity.** The Contractor shall indemnify and save harmless the City from and against all losses and all claims, demands, payments, suits, actions, recoveries and judgments of every nature and description brought or recovered against it by reason of any act or omission of the Contractor, his agents or employees, in the execution of the work or in the guarding of it.

Article 29. **Unpaid Wages.** Whenever, in the opinion of the Engineer, it may be necessary for the progress of the work to secure to any of the employees engaged in the work under this contract any wages which may then be due them, the City is hereby authorized to pay the employees the amount due them or any lesser amount and the amount so paid them, as shown by their receipts, shall be deducted from any moneys that may be or become payable to the Contractor.

Article 30. **Indemnity Bond.** This contract shall not become operative unless the Contractor on or before the time of signing the contract shall have delivered to the City a satisfactory surety bond in such form and amount as the City may prescribe guaranteeing the satisfactory performance of this contract; and such bond shall be attached thereto and become a part of this contract.

Article 31. **Damages.** Should the Contractor be of the opinion at any time that he has sustained damages under this contract, for which he should be compensated, or has been required to perform extra work not ordered in writing by the Engineer, he shall, within seven days after sustaining such damage or doing such extra work, make a written statement to the Engineer, of the nature of the damage claimed or of the extra work performed and not ordered. The Engineer shall thereupon render a decision in the matter, which decision shall be subject to review under the provisions of Article 40, but if such claim shall not have been presented within the seven days above mentioned, but shall be presented at some later time, then the Engineer's decision in the matter shall be final and the Contractor shall not be entitled to have such claims reviewed.

Article 32. **Lands for Work.** The City shall provide the lands upon which the work under this contract is to be done except that the Contractor shall provide land required for the erection of temporary construction facilities and storage of his material, together with right of access to same.

Article 33. **Assignment.** The Contractor shall not assign the contract or sublet it as a whole without the written consent of the City.

Article 34. **Rights of Various Interests.** Wherever work being done by the City's forces or by other contractors is contiguous to work covered by this contract, the respective rights of the various interests involved shall be established by the Engineer.

Article 35. **Separate Contracts.** The City reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs.

If any part of the Contractor's work depends for proper execution or results upon the work of any other contractor, the Contractor shall inspect and promptly report to the Engineer any defects in such work that render it unsuitable for such proper execution and results. His failure to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of his work, except as to defects which may develop in the other contractor's work after the execution of his work.

Article 36. **Subcontractors.** The Contractor shall as soon as practicable after the signature of the contract notify the Engineer in writing of the names of subcontractors proposed for the work and shall not employ any that the Engineer may within ..... days object to as incompetent or unfit.

The Contractor agrees that he is as fully responsible to the City for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

Nothing contained in the contract documents shall create any contractual relation between any subcontractor and the City.

Article 37. **Points and Instructions.** The Contractor shall provide reasonable and necessary opportunities and facilities for setting points and making measurements. He shall not procede until he has made timely demand upon the Engineer for, and has received from him, such points and instructions as may be necessary as the work progresses. The work shall be done in strict conformity with such points and instructions.

The Contractor shall carefully preserve bench marks, reference points and stakes, and in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

Article 38. **Engineer's Status.** The Engineer shall have general supervision and direction of the work. He has authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the Contract. He shall also have authority to reject all work and materials which do not conform to the contract, to direct the application of forces to any portion of the work, as in his judgment is required, and to order the force increased or diminished, and to decide questions which arise in the execution of the work.

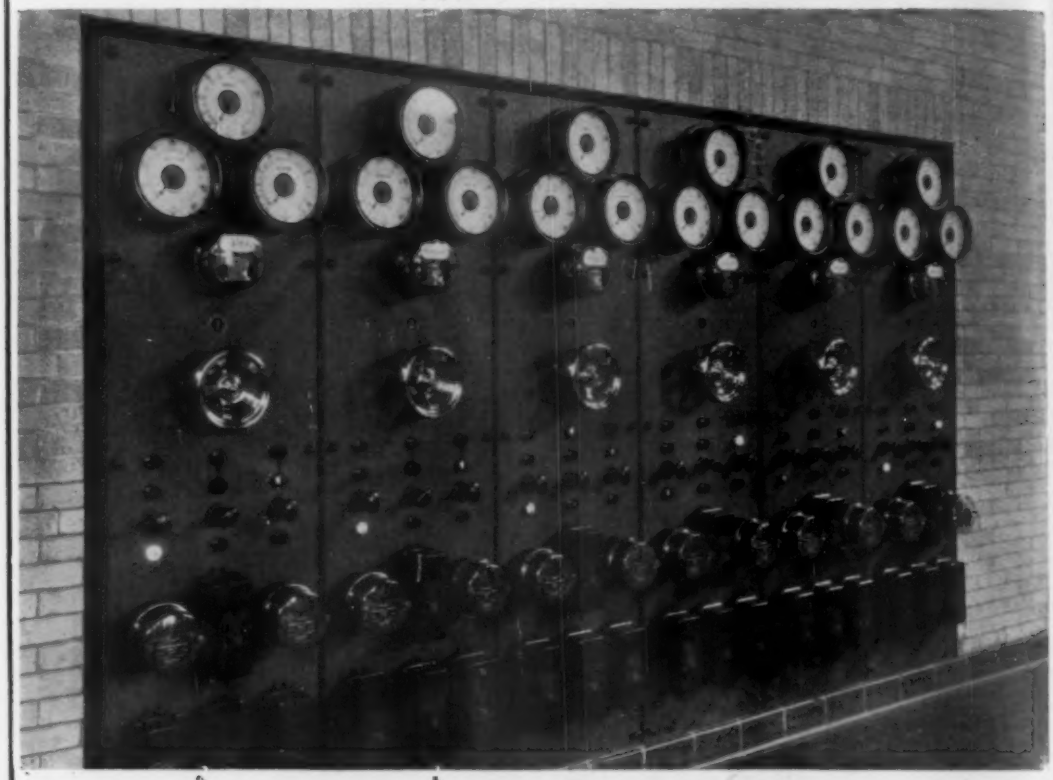
It is further agreed by all parties hereto that the Engineer shall in all cases determine the amount or quantity, or the classification of the several kinds of work or material, which are to be paid for under this contract.

Article 39. **Engineer's Decisions.** The Engineer shall decide all questions which may arise relative to the performance of this contract. All decisions of the Engineer shall, when so requested, be rendered in writing. They shall be final and conclusive in all matters except the financial considerations involved. They shall be final also as to the financial consideration unless within ten days after such decision the Contractor applies in writing to the.....(11) for a review of such decision.

Article 40. **Review of Decisions.** When an application for review of the Engineer's decision is presented, said.....(11) shall, within.....days thereafter, give opportunity for the Contractor to appear before it and the Engineer, and present evidence bearing upon such decision, and any claims for a modification or reversal thereof. Said.....(11) shall render its decision within.....days after such appearance and its decision shall be final unless the Contractor shall, within.....days after receiving the decision, give notice in writing of his intention to file suit in court for final determination of the matter.

Article 41. **Cleaning Up.** The Contractor shall, as directed by the Engineer, remove from the City's property and from all public and private property, at his own expense, all temporary structures, rubbish and waste materials resulting from his operations.

NOTE: (11) Insert name of Supervisory Board, Commission or Council.



Republic Water Meters—Detroit High Pressure Pumping Station

METERS STAND SEVERE TEST

The Detroit High Pressure Pumping Station was designed to extend high pressure water service for use in the Detroit downtown district. It supplies a piping system capable of sustaining a pressure as high as 300 pounds although the normal operating pressure is in the neighborhood of 150 pounds. Six motor driven centrifugal pumps each with a capacity of approximately 3200 G.P.M. constitute the pumping equipment. These pumps are controlled by the six control panels which are represented in the photograph.

Due to the fact that the pumps are motor driven and that they are cut into service at a moment's notice, the meter duty is especially severe since there is a terrific sudden impact of the meters whenever a pump is started. No mechanical form of meter could have withstood this sort of service and retained its accuracy for any great length of time.

The full measure of the utility of the flow indicators was not appreciated until actual service started. When the Station was being designed it was thought that the control of the pumps would be based chiefly on the indications of the individual pump pressure gauges and the flow indicator utilized chiefly to show up any faulty condition. However, it was soon found out that the pressure gauges could not be utilized for close control of the pumps due to the fact that even a few ounces difference in pressure which could not be detected upon a pressure gauge would make a tremendous difference in the delivery of the pump to the supply line. To understand this it must be appreciated that each pump has a form of by-pass control which allows any water in excess of that required to maintain a definite pressure to circulate through a loop system.

Bulletin "Republic Water Meters" mailed on request.

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Dominion Flow Meters Co.,
Toronto 8, Montreal
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2226 Diversey Pkwy.

Chicago, Illinois.

Electroflo Meters Co.,
Park Royal, London, N. W., 10
England

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Municipal Accounting and Finance

Conducted by Francis Oakey, C. P. A.

Member of the Firm of Searle, Oakey & Miller, New York

Correcting Abuses in Local Tax Methods

By Guy P. Miller

Member of the Firm of Searle, Oakey & Miller

WITH the rapidly mounting costs of local government, the inequalities in assessments which are the basis for figuring taxes become more and more serious in the administration of the finances of municipalities. The subject is receiving increasing attention in many sections of the country. In the state of Connecticut, for example, a serious effort is being made to correct the unsatisfactory conditions which have existed for many years.

Present Methods of Assessment

Under existing Connecticut state laws real estate and personal property are both taxed locally on the ad valorem basis at the "fair market value," which means something different to nearly every assessor in the 169 towns in the state. In Connecticut each assessor or group of assessors is a law unto himself and interprets the laws relating to the assessment of property to suit himself. Although the state law requires that property be assessed at full value, the practice in the various towns differs widely.

The courts of this state have not handed down any decisions regarding methods of determining the "fair market value" of personal property, so there arise great differences of opinion between the taxpayer and the assessors. Many appeals to court are filed by taxpayers, but almost invariably these are compromised. While the market value of raw material is comparatively easy of determination, stock in process of manufacture may be valued in a number of different ways, varying from scrap value to cost including factory overhead. A fair compromise is to value it at cost of material and direct labor only. Finished goods naturally have to be valued the same way; otherwise manufacturers would soon learn to omit the final operation until just before shipment.

Machinery presents a difficult problem. It may be valued at cost less depreciation or at appraisal value, known as "sound value," or at what it will bring in the second-hand machinery market. The legal method has never been determined. An earnest effort to solve these problems has been made by the State Tax Commissioner, but bills presented by him have not so far met the approval of the General Assembly.

Efforts of the Municipalities to Meet the Difficulties of Assessment

Some of the cities and towns have made an effort to establish a uniform system of determining the value of land and buildings, but the valuation of personal property continues to be determined by the old bargaining process, as the task set for the assessor by law is impossible of fulfillment. The result is that very little effort is made to collect a tax upon the personal property of individuals, with the exception of certain classes of property like automobiles, where a source of information exists in the state records of registration. The assessment of personal property of corporations, principally machinery and merchandise, presents a very difficult problem; about the only basis for valuation that exists consists of book values, which are not always accessible and which are established by standards which vary greatly. Nevertheless, the present method of taxing such property seems to be more popular than a change in the law which would raise the income by means of an increase in the state income tax on corporations in a similar way to that employed by the state of New York. Several cities in the state have met the problems by cooperation of the interested parties in an effort to distribute the burden more equitably. One city has persuaded the manufacturers to fill in a confidential schedule of inventory and material valuations to a definite formula, which results in a fairer distribution of the tax burden between manufacturers but does not comply with the law. Inasmuch as the

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basis of values as represented by the reports is evidently below the legal limits, there is no reason for an appeal to the courts. The basis is justified by the city assessor as not increasing the burden of other classes of taxpayers, on the ground that individuals rarely list any of their personal property such as musical instruments, household furniture and jewelry.

Abuse of the Power of Assessment for Political Purposes

Politics has its hand in this matter, as an administration which increases the tax rate has some explaining to do; so the common trick is to increase assessments where it will do the least harm to the political party in power, instead of increasing the rate. This also helps out in another direction, that of bonding, as the state law provides that towns and cities may issue bonds to the extent of 5 per cent of their "Grand List." The higher the Grand List, the greater the bond issue, and the greater the bond issue the more money for the politicians to spend.

For many years one of the largest cities in the state used the tax assessor's office both to reward the faithful and to punish the opponents of the political machine, until a special act of the Legislature took away the control of appointments from the mayor and the local political machine and legislated their appointees out of office. This course was taken on the theory that an emergency existed whereby it was as necessary for the state to protect the pocketbooks of the taxpayers of the city as it would be for it to protect the persons and property of its citizens by martial law when necessary. The report of conditions which existed was made to the Governor by the State Tax Commissioner after a lengthy investigation and summoning of many witnesses who testified under oath. It was determined that many illegal practices existed which benefited one group of taxpayers at the expense of another.

Illegal Reductions of Taxes

Section 1255 of the Connecticut statutes reads as follows: "Any clerical omission or mistake in the assessment of taxes may be at any time corrected according to the facts by the assessors or board of relief, and the tax shall be levied and collected according to such corrected assessment." It was the custom for many years, in the city referred to, for the assessing authority at discretion to issue to the tax collector what they called "Certificates of Error." They claimed the right under this statute to reduce valuations at any time within their discretion, even after the Board of Relief had rendered its report and the final tax rate had been determined, and in one year they issued Certificates of Error reducing the Grand Lists of previous years more than two million dollars. This practice was put a stop to by the State Tax Commissioner, who caused an action to be brought by the local tax collector against a corporation that had benefited by such a certificate. The Supreme Court handed down its opinion in favor of the city, which at once branded as illegal the hundreds of Certificates of Error which had been previously issued reducing valuations.

Section 1289 of the Connecticut statutes reads as follows:

> "The selectmen of towns, the mayor and aldermen of cities, the warden and burgesses of boroughs, and the committees of other communities may abate the taxes assessed by their respective communities upon such persons as are poor and unable to pay the same; and shall present to each annual meeting of their respective communities a list of all persons whose taxes they have abated in the preceding year."

Another illegal method of reducing taxes was to wilfully misinterpret the above statute and to abate taxes by vote of the aldermen and approval of the mayor upon recommendations of the claims committee of the common council. By this practice the favored taxpayer was relieved of his tax burden in whole or in part, including interest thereon.

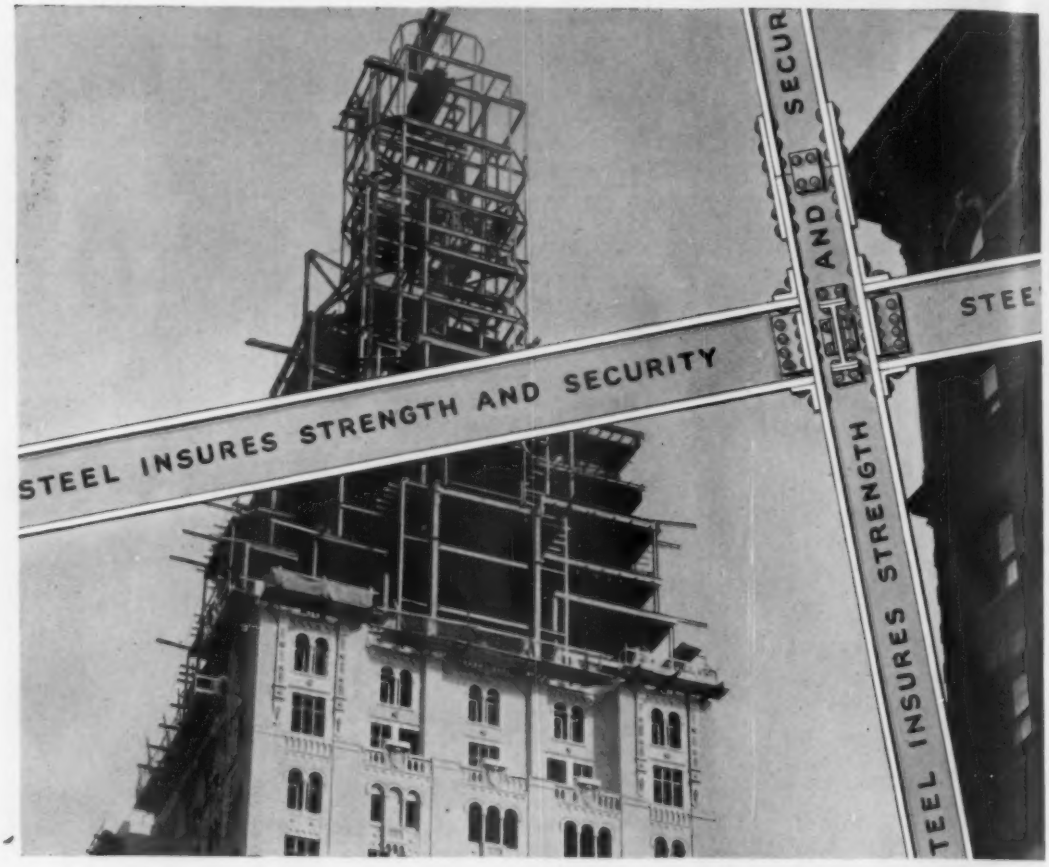
The writer is of the opinion that centralized but limited control should be placed by law with the state tax commissioner, at least to the extent of giving him the right to interpret all state laws relating to taxation and obliging the towns and cities to follow his regulations, with the privilege, of course, on the part of the taxpayer, of an appeal to the court.

—*Copyright, 1927, Guy P. Miller.*

Municipal Election and Budget Dates

are given for the 48 states in a tabulation on pages 116-119 of THE MUNICIPAL INDEX for 1927. The same tabulation also answers for most of the 48 states the following questions:

When do new officials chosen at the municipal elections take office?
Has your state a law which provides a uniform accounting system for municipalities?
Are municipalities required to prepare an annual budget?
At what time of the year is it obligatory (or customary) for the municipalities to prepare their budgets for the ensuing year?



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The City's Legal Rights and Duties

Conducted by A. L. H. Street, Attorney at Law

Right of Police Officer to Increase in Pension on Increase of Basic Salary

Under the Los Angeles ordinance providing for pensioning of police officers, a chief of police retired at half-pay while receiving a monthly salary of $400 was entitled to increase in the pension on the raising of the salary later to $500, holds the California District Court of Appeal in the case of Jones vs. Cooney, 255 Pacific Reporter, 536.

Municipal Police Power Extends to Regulation of Rooming-Houses

"The business of conducting a rooming-house is a legitimate one, in which all persons similarly situated are lawfully entitled to engage," declared the Montana Supreme Court in the recent case of State vs. City of Billings, 255 Pacific Reporter, 11. "But it is one which is so far concerned with the health, morals and welfare of the public that it is within the police power of the city to regulate it."

City and School District Property When Subject to Assessment Must Be Considered in Protest Against Local Improvement

Since under the Kansas statutes city and school district property is subject to assessment for street improvements, such property is to be taken into account in determining the sufficiency of a protest against a proposed improvement, under the provision for defeat of the improvement on remonstrance being filed by the resident owners of more than one-half of the property liable to assessment. (Kansas Supreme Court in the case of Palmer vs. Munro, 255 Pacific Reporter, 67.)

Assessments Against State Property for Local Improvements Must Be Especially Authorized

Assessments made by the city of Detroit against the Michigan state fair grounds for sewers, paving, sidewalks, etc., were declared by the Michigan Supreme Court to be invalid, in the case of People vs. Ingalls, 213 North Western Reporter, 713.

It is held that the exemption from assessment does not rest upon the state law exempting state property from taxation, for that statute relates only to general taxation, but rather upon the principle that the state's sovereignty protects it against taxation to which it has not assented. Says the Court:

"The doctrine has been pretty well settled in this state and elsewhere that property owned by the state or by the United States is not subject to taxation unless so provided by positive legislation. And municipalities and state agencies are included in this class when their property is used for public purposes. The reason which supports this doctrine is that, if taxes were permitted to be levied against the sovereign, it would be necessary to tax itself in order to raise money to pay over to itself. This would be an idle thing to do. And, besides, it is rather incongruous that the creature should have the right to tax the creator without its consent. Out of this reason has grown an implied presumption that the state is exempt from all taxes, unless the one asserting it can point to some legislation in support of it."

Auction Sales of Goods May Be Regulated But Not Forbidden

An Arkansas statute purporting to enable cities to prohibit the sale of merchandise at auction, excepting judicial and foreclosure sales, is unconstitutional, decides the Supreme Court of that state in the case of Balesh vs. City of Hot Springs, 293 South Western Reporter, 14. The Court says:

"The business of auctioneering is a lawful and useful one and is as old as the law of sale. . . . It is universally held that the Legislature has the power to prohibit auctioneering except through licensed auctioneers, and it may, also, make other regulations which are reasonable and not wholly arbitrary. . . .

"We are of the opinion that the statute under consideration is an unreasonable interference with the freedom of trade, and the Legislature had no power to pass an act prohibiting an occupation which has already been regarded as a legitimate one, although it may be made the subject of reasonable regulation under the police power of the state."

Licensing Power Must Be Reasonably Exercised

Under the Michigan statutes forbidding township boards to issue dance-hall licenses to persons reputed to be promoters of vice and immorality, etc., a license may not be arbitrarily refused, holds the Michigan Supreme Court in the case of Skinner vs. Township Board for Argentine Township, Genesee County, 213 North Western Reporter, 680. The Court said:

"The question to be determined, in the first instance by the township board, is as to whether or not the applicant possesses the required statutory qualifications. But the board in deciding this cannot act arbitrarily, maliciously, or capriciously refuse a permit, and whether it acts arbitrarily or in good faith is a proper matter for court review."

How Public Highways Become Established

"There are certain methods by which the public acquires the right to pass and repass over a way, thus establishing a highway," observed the Florida Supreme Court in the late case of Couture vs. Dade County, 112 Southern Reporter, 75. "Those methods are by prescription or long user as such, by statute or statutory proceedings in the exercise of the right of eminent domain; or by dedication to the public by the owner of the soil with the sanction of the public authorities. . . .

"The establishment of a public highway by prescription or long user is based on the presumption

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of a prior grant either of an antecedent exercise of the power of eminent domain by the proper authorities or a prior dedication of the land to public use; in any event it is the adverse use and possession which establishes the highway."

City Held Not Liable for Accident Caused While Repairing a Street

The Ohio statute making cities liable for injuries resulting from failure to keep their streets in repair, does not render them liable for negligence of their servants in repairing or improving streets, according to the decision of the Ohio Supreme Court in the case of City of Wooster vs. Arbenz, 156 North Eastern Reporter, 210. So, it was concluded that the city was not liable for injury to an automobile resulting from collision with a negligently operated truck used in hauling cinders to repair a street. Referring to an Ohio statute, the Court says:

"By virtue of section 3714 the duty has been enjoined upon municipalities to keep streets and alleys open, in repair, and free from nuisance, and it follows from that that they may be made to respond in damages for a failure so to do. The liability thus imposed by that statute is in derogation of the common law and therefore must be strictly construed. The liability having only been imposed for a failure to keep streets in repair, the provisions of that section cannot be by implication or interpretation extended to make the municipality liable for the negligence of its servant while engaged in the act of making improvements to its streets and alleys."

Unsuccessful Attack on Establishment of a Municipal Cemetery for Negroes

The city of New Bern, N. C., bought and paid for 93 acres of land at $13,500 for use as a cemetery for the burial of the colored dead. Nearby property owners unsuccessfully sued to compel a rescission of the purchase and to prevent use of the land for cemetery purposes. The North Caroline Supreme Court affirmed a decree dismissing the suit. (Harrison vs. City of New Bern, 137 South Eastern Reporter, 582). Here is the substance of the Court's most important rulings in the case:

Proof that there was need for a cemetery for the burial of the city's negro dead and that the land in question was the only suitable ground available established the city's right to proceed with the project, although the tract is three miles from the city.

The courts should not order cancellation of the purchase at the instance of taxpayers, although it was illegal in its inception because not provided for by the municipal budget; there being no fraud in the purchase and it having been completed. "While the board of aldermen has made an appropriation of money for which no provision was made in the budget, and has paid same out of the city's treasury, in violation of the statute, the city has received full value for said money."

Condemnation Proceedings Must Be Reasonably Continuous—Authorities Have Considerable Discretion as to Particular Land to Be Acquired

What the Pennsylvania Supreme Court lately decided (Petition of Fayette County Commissioners, 137 Atlantic Reporter, 237) concerning condemnation of a site for an addition to a county court-house would seem to apply with full force to condemnation of property for any public use.

Holding that eight months' delay in approval of an official report showing necessity for the addition did not preclude further proceedings toward condemnation, the Court said:

"It is not necessary that the various steps required by the statute be more than reasonably continuous. So it has been held that a delay of three years, caused by the existence of war, did not prevent subsequent approval by the Court. If, however, a long period of time is permitted to elapse, and, as a result, persons interested are led to believe the project has been abandoned, a new proceeding must be instituted."

Another point decided in the case is that a property owner cannot defeat condemnation of his property by showing that there is other property equally as well, or better, adapted to the intended public use than his. On this phase the Court observes:

"Just as the directors of a railroad are made the judges of the necessity for the taking of land for corporate purposes, which they have a statutory right to condemn, so in this case the same discretion is confided to the commissioners, subject to sanction by the Court. Morever, this power is not limited to present necessities; provision may also be made for apparent future needs."

California Adopts Rigorous County Budget Law

A LAW placing all counties in California under a budget system was signed by the Governor on May 12. The full text of the law (Senate Bill 298) is given in the May number of *The American County*, with the comment:

"Although supervisors of California counties made vigorous protests to the Senate, the Assembly and the Governor against certain provisions of the law, it will go into effect on January 1, 1928. No objection was made to a law making it necessary for counties to operate under the budget plan, as practically all the counties had adopted the budget plan several years ago, many of the counties being in advance of the state and federal governments in adopting the budget idea. Objections were made, however, to the provisions of the law which will make for difficulties of administration. Greater responsibilities were placed upon the supervisors by a provision reading as follows: 'Expenditures made, liabilities incurred, or warrants issued in excess of any of the budget appropriations as originally determined, or as thereafter revised by transfer, as herein provided, shall not be a liability of the county, but the official making or incurring such expenditure shall be liable therefor personally, and upon his official bond.'

"After a budget has been approved, transfers are not permitted, even by a four-fifths vote or upon the petition of every taxpayer within the county, between the general classes of 'capital outlay' and 'maintenance and support.'"

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This floating boom is one big reason why Barber-Greenes last so long on even the toughest kind of work—such as loading directly from pit banks and handling frozen materials. And it helps to explain why the average cost of Barber-Greene Loader repairs is so remarkably low.

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Zoning Notes

Prepared by Frank B. Williams

Author of "The Law of City Planning and Zoning"

From data collected by the Zoning Committee of New York (233 Broadway)

Recent Zoning Statutes and Ordinances

ARCADIA, CALIF.—Ordinance, March 3, 1926.
CHULA VISTA, CALIF.—Ordinance, March 8, 1927.
SANTA ANA, CALIF.—Ordinance, February 28, 1927.
DARIEN, CONN.—Ordinance, December 10, 1925.
FORT MYERS, FLA.—Ordinance, 1926.
INDIANA.—Enabling Act for towns, January, 1927.
MAINE.—Amendment of Enabling Act, 1927, Ch. 172.
MARYLAND.—Enabling Act, Standard Form, 1927, Ch. 705.
MASSACHUSETTS.—Amendment of Boston Zoning Law, 1927, Ch. 220.
LINCOLN, NEBR.—Ordinance, March 22, 1926.
MANCHESTER, N. H.—Ordinance, January 18, 1927.
NEW YORK.—Amendment of General City Law, 1927, Ch. 504.
AMSTERDAM, N. Y.—Ordinance, May 18, 1926.
KENSINGTON, N. Y.—Ordinance, February 9, 1926.
OWEGO, N. Y.—Ordinance, October 4, 1926.
PERRY, N. Y.—Amendment of Ordinance, February 16, 1926.
TICONDEROGA, N. Y.—Ordinance, July 7, 1926.
WHITE PLAINS, N. Y.—Ordinance, May 9, 1927.
BARRINGTON, R. I.—Ordinance, July 7, 1926.
PROVO CITY, UTAH.—Ordinance, October 1, 1926.
VIRGINIA.—Enabling Act for Arlington County, Standard Form, April 11, 1927.

Constitutionality of Building-Line Setbacks Upheld by United States Supreme Court

Alleging that the zoning ordinance of the city of Roanoke, Va., by compelling the petitioner to set his building back from the street line of his lot, deprived him of his property without due process of law, the case of Gorieb v. Fox, et al., was carried up to the United States Supreme Court. Because of the importance of the decision in this case, handed down in Washington on May 31, sustaining the validity of the building-line setback principle, a special article has been devoted to the subject. **See page 11 of this issue.**

Preservation of Boundary Lines Between Districts

NEW YORK.—*Pounds v. Board of Standards & Appeals, N. Y. Law Journal,* May 24, 1927. The E area districts in New York City are for the public advantage, and the fact that covering a larger percentage of the lot would bring in a larger return does not make the provisions forbidding it, an unnecessary hardship. With regard to the E districts the Court says:

"It is clear that the preservation of the E districts, where detached private residences are maintained, is in the interest of the health, safety, morals and general welfare of the community. While public parks may furnish open spaces, they are, nevertheless, a public expense. The zoning plan affords a method of preserving spaces which contribute by taxes to the public treasury instead of being a public expense. Such spaces where grass and flowers may grow and where the buildings are well set back from the street are breathing-spots which ought to be preserved. These open spaces are not necessarily the localities of the well-to-do. On the contrary, in many parts of Brooklyn such spaces contain the small homes of people of moderate means, and in order to encourage the development of such localities the Building Zone Resolution recognizes that every part of the city should not necessarily be given over to dense construction and consequent congested living conditions. . . .

"It is obvious that the edges of such districts will always be precarious, because of necessity they are bordered by either C or D districts; consequently it will always be a temptation to a lot owner on the edge of an E district to desire to erect a multi-family building which will overlook the surrounding E district homes and grounds. If he can succeed he will obtain a better rental for his apartments than if he were to build in a C district. In these circumstances such a lot owner will endeavor to obtain a variance of the zoning resolution so as to permit denser construction. But because the edges of an E district are necessarily in contact with such conditions as a street surface railroad or a main thoroughfare, or an apartment house on the opposite side of the street, is not a practical difficulty or unnecessary hardship in the way of carrying out the strict letter of the provisions of the zoning resolution. The boundary lines of the E districts which were established by the legislative authority of the city should not be unreasonably or arbitrarily disturbed. These boundary lines must be somewhere, and when established they should be preserved unless it clearly appears that in a specific case a practical difficulty or an unnecessary hardship is presented."

Other Recent Zoning Cases

CALIFORNIA.—*Thille v. Board of Public Works of City of Los Angeles.* See page 12 of this issue.

NEW JERSEY.—*Aitken v. Borough of Hasbrouck Heights,* 136 Atl. Rep. 802. Mandamus lies to compel the issuance of a building permit where there is no board of zoning adjustment to which appeal from refusal to issue permit may be had.

NEW JERSEY.—*Marlyn Realty Co. v. Town of West Orange,* 136 Atl. Rep. 926. Where there is a board of adjustment, resort to it is necessary before there can be resort to the courts in Mandamus.

NEW JERSEY.—*Oxford Construction Co. v. City of Orange, N. J.* Advance Reports, Vol. 5, p. 729. The decision in this case in the Supreme Court has already been summarized in these "Notes," and the opinion in the Court of Errors and Appeals referred to. This opinion of the highest court in the state is now before us in full. Our readers will remember that it declines to follow the decisions in many other states, and distinguishes the Euclid

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Village case. The head note in this important case, not as yet officially approved by the Court but closely following the language of the opinion, is as follows:

Zoning—Extent of Police Power—U. S. Supreme Court case of Euclid v. Ambler Realty Co.—Appellants contend that views of our own courts are not in harmony with those of our sister states and have been repudiated by the Supreme Court of the United States. *Held*, that so far as the decisions of some of our sister states are concerned, the fact that they take a different view from our own is no reason why we should change our own; that so far as the decision of the Supreme Court is concerned, there appears to be no conflict with our own position; that the reference in the opinion to the narrowly limited power of the New Jersey legislation to authorize the adoption of such ordinances was based upon the Nutley case decision, as expressed in the Supreme Court of New Jersey, which was not adopted by the Court of Errors and Appeals; that the Federal Supreme Court expressly declared that when, if ever, the provisions set forth in the ordinance under review should come to be concretely applied to particular premises, or to particular conditions, or to be considered in connection with specific complaints, some of them or even many of them, might be found to be clearly arbitrary and unreasonable; that the Euclid case was brought to test the broad power of the Legislature to authorize such ordinances, a power regarded a broad one by this Court, and not to determine some concrete case of the exercise of the police power.

It seems to the writer that this case does not in fact justify the hope, which might be entertained at first reading, that zoning, as practiced with much benefit to the public in other states, will, without constitutional amendment, be useful in the same way in New Jersey; for the instances in which provisions in zoning ordinances are upheld in New Jersey do not furnish the basis for comprehensive systematic regulation, so essential in this field.

PENNSYLVANIA. — *Ward's Appeal, Supreme Court*, May 9, 1927. The Appellant Ward owns a one-story frame building in a residential district. It has been used many years as a store. In 1926 the city authorities notified him that the building was in a dilapidated and unsafe condition, and that he must repair or raze it. He submitted plans, which the building inspector refused to approve on the ground that he was practically erecting a new structure to be used for business. He applied to the Board of Appeals, which refused relief on the ground that a building used for a non-conforming use could be repaired but not built practically new for the continuance of the use, and there was no unnecessary hardship. The upper court sustained the Board of Appeals.

VIRGINIA.—Goricb v. Fox. See page 11 of this issue.

Recent Zoning Literature

The *Real Estate Magazine* of Philadelphia in its issue of February, 1927, contains an article on zoning by James J. Walker, Mayor of the city of New York, in which he says that this system of regulation has been a "marked success" in New York City.

The *Baltimore Daily Record* for May 10, 1927, publishes an address of C. Arthur Eby of the Baltimore bar before the Barristers Club of that city on zoning, which has been republished by the Real Estate Board of that city as a pamphlet. The address discusses zoning generally, and also with especial reference to the statutes and decisions affecting it in Baltimore.

The Municipal Bond Market

By Sanders Shanks, Jr.
Editor, *The Bond Buyer*

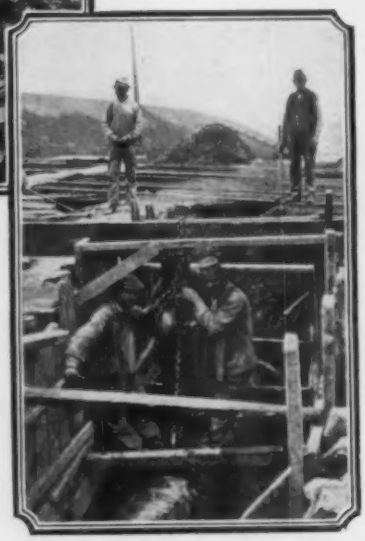
WHEN due consideration is given to the tremendous volume of new securities which have been offered to the public since the first of the year, the reactionary trend of the bond market in recent weeks is not surprising. For the full six months' period ending June 30, it is estimated that new capital issues reached the record-breaking total of $4,000,000,000, of which about $800,000,000 were state and municipal loans. With bonds piling up on dealers' shelves and no sign of a reduction in the volume of borrowing for weeks ahead, the municipal market softened during the first week in June and has continued irregular with state, county and city borrowers of first-grade credit paying net interest rates from five to fifteen one-hundredths of one per cent higher than the market would have demanded in April or May.

A contributing adverse market factor was the Treasury Department's decision to offer holders of Second Liberty 4's and 4¼'s (previously called for payment on November 15) a long-term 3⅜ per cent bond. It was expected that the holders of these bonds, of which some $1,700,000,000 were outstanding, would be offered only a short-term bond in exchange and that many would switch into other classes of bonds, especially municipals of medium to long maturity, rather than take a lower interest rate on a short U. S. Government note. Obviously, the prospective volume of such switching operations was greatly reduced by the unexpected offer of a twenty-year Government bond.

Expert opinion on the municipal bond market is fairly well agreed at this time that a quiet market will prevail during the summer with prices close to, but possibly a shade below, the current level. By early fall, the surplus volume of bonds now carried by dealers should be considerably reduced and new offerings by states and cities will probably be much smaller, the result of which should be reflected in a resumption of the forward movement of prices which characterized the market during the first five months of this year.

The following list of representative issues indicates the prevailing price level of municipal bonds at original sales:

Amount	Issue	Rate %	Term	Yield %
$10,000	Barnstable Co., Mass.	4	1-5Yr.Ser.	3.74
87,800	White Co., Ind.	4½	1-10Yr.Ser.	3.93
1,200,000	Monroe Co.,N.Y.	4	181/6Yr.Avg.	3.93
1,000,000	Kansas	4	26-27 Yr.Ser.	3.97
1,380,000	Albany, N. Y.	4	1-40Yr.Ser. 1-6Yr.Ser., 1-5Yr.Ser.,	3.98
1,580,000	Yonkers, N. Y.	4 4¼&4½	72/3Yr.Avg.	4.06
3,000,000	California	4¼	141/6Yr.Avg.	4.07
60,000	Du Bois, Pa.	4½	8½Yr./Avg.	4.08
40,000	Westm'ster, Md.	4¼	11½ Yr.Avg.	4.12
616,000	Portland, Ore.	4½	3-20Yr.Ser.	4.21
150,000	Yakima, Wash.	4¼	16Yr.Avg.	4.22
60,000	Sandusky, Ohio.	4¼	6Yr.Avg.	4.31
3,175,000	Houston, Texas.	4½&5	13Yr.Avg. &15½Yr.Avg.	4.35
30,000	Des Moines, Ia.	4½	81/3Yr.Avg.	4.40
1,000,000	Jacksonville, Fla.	5	2-6Yr.Ser.	4.53



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New Towns for Old.—By John Nolen. Marshall Jones Company, Boston, Mass. 1927. XXIX + 177 pp. $3.00.

The aims of this readable book are, in the first place, to describe a few representative examples of civic improvement in small towns and neighborhoods; secondarily, to point out the advantages of smaller cities and towns and the ease with which they can be improved; and, further, to urge the establishment of more new towns, planned for modern requirements and higher standards, and intended to be kept small rather than be distorted into metropolises. The examples selected include an industrial town extensively reshaped (Walpole, Mass.); an old seacoast town undergoing more gradual improvement (Cohasset, Mass.); and five small cities or urban suburbs planned and built as completely new projects or nearly so. These are: Kingsport, Tenn., and Kistler, Pa., industrial communities; Union Park Gardens, Del., industrial in origin, as a war emergency project, and now a general residential suburb; Mariemont, Ohio, a suburb, in the building, for industrial workers; and Myers Park, N. C., a suburb of exclusive type. The last chapter of the book also mentions a number of other places planned to meet new conditions. The book is very fully illustrated with many striking photographs, including several airplane views; there are also many maps and plans, but the relatively small page size interferes somewhat with their legibility. A bibliography of town-planning reports relating to small communities, and of books and articles on town and city planning, is given.

International Housing and Town Planning Congress, Vienna, 1926.—Part III of the report of the Congress, containing an account thereof, with the discussions at the five sessions, on the subjects of land tenure in relation to planning, ratical distribution of cottages and tenements, and the housing situation, with special reference to public housing. The report is in English, French and German; the addresses are given in full in the original language of the speaker and summarized in the other two languages. 196 pp. (Apply to the Federation, 25, Bedford Row, London, W. C. 1, England.)

National and Municipal Governments.—A booklet by George W. Knox, Corporation Counsel of Niagara Falls, N. Y., giving the principles involved in the three chief forms of American municipal government, and the difference in principles for sovereign and municipal governments. 22 pp. (Apply to the author.)

History of the National Capital and Work of the National Capital Park and Planning Commission.—A speech of Hon. Frederick N. Zihlman of Maryland, in the House of Representatives at Washington, February 28, 1927. It sketches the history of the District of Columbia and describes and commends the activities of the Commission referred to. 16 pp. (Apply to the author, House of Representatives, Washington, D. C.)

A Research into the Economics of Land Subdivision.—A report by Robert Whitten, city planning consultant, New York City, prepared under the joint auspices of the School of Citizenship and Public Affairs of Syracuse University and the Regional Plan of New York and Its Environs. It presents existing conditions and problems and considers costs of land, street improvements and houses, with particular reference to the plan of complete neighborhood units for low- or medium-cost housing. An article by Mr. Whitten, dealing with this study, appeared in the March number of **The American City**. 72 pp. (Apply to School of Citizenship and Public Affairs, Syracuse University, Syracuse, N. Y.)

The Jurisdiction of Planning Commissions Relating to Land Subdivision.—A 5-page mimeographed paper constituting the May 1 Bulletin of the Pennsylvania Association of Planning Commissioners. (Apply to Bureau of Municipalities, Pennsylvania Department of Internal Affairs, Harrisburg, Pa.)

Keeping the City Clerk's Records.—A two-page article by W. C. Hall, Senior Municipal Accountant, League of Kansas Municipalities, in *Kansas Municipalities* for May. It describes records and procedure, as an aid for new city clerks. 25 cents. (Apply to *Kansas Municipalities*, Lawrence, Kans.)

Aircraft Year Book, 1927.—Aeronautical Chamber of Commerce of America, Inc., New York. 1927. XIV + 396 pp. $5.25, postpaid.

The progress of aviation in 1926 is recorded in this volume, gotten out by the Aeronautical Chamber of Commerce of America, which promotes the interests of manufacturers and dealers in aviation equipment, and the advancement of the aeronautical art. The Air Commerce Act of Congress, 1926, and the adoption of continuing and progressive five-year aviation programs for the army and the navy, together with the provision of assistant secretaries of aviation in the war and navy departments, are given special mention and commendation. It is said that whereas at the end of 1923 the United States held practically all the world's sporting records for aircraft performance contests, the volume of production of the American aircraft industry lagged behind that of other countries; whereas at the end of 1926 the records had been lost, but the foundations for a satisfactory volume of business had been achieved. Besides giving a compact and interesting chronology, the book reviews at considerable length, civil aviation, both private and governmental; military activities; foreign aviation; airships; airways; technical development and education; and the aeronautical industry. The book is handsomely printed and illustrated, and contains an extensive appendix. One feature in the latter is a list of 369 cities with one or more municipal or commercial airports.

Airports and Airways. By Lieutenant Donald Duke, Chief, Airways Section, Army Air Corps. The Ronald Press Co., New York. 1927. XII + 178 pp. $5.00.

Maintaining that the establishment of airports should be a responsibility of city governments rather than of commercial aeronautical enterprises, and that the cities should anticipate a large development of commercial aviation, this book presents a survey of present conditions and gives much detailed and semi-technical information for the guidance of municipal authorities, chambers of commerce and others faced with the problem of building airports, besides having considerable general interest. Accessibility of airports so that the advantages of airplanes speed may not be neutralized, is stressed. The laying-out of airways and the provision of beacons, identification signs, maps, bulletins, meteorological data and other navigation facilities are gone into.

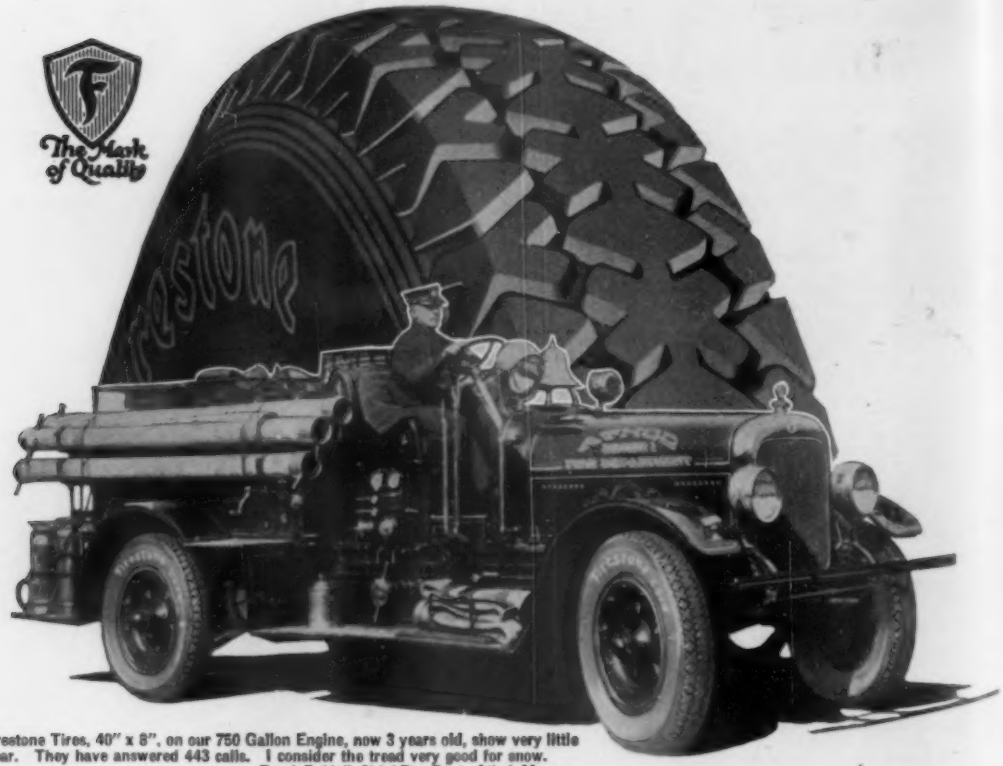
Aviation.—This is the topic dealt with in the May number of *The Annals* of the American Academy of Political and Social Science. The editor in charge of the volume is Frank A. Tichenor. There are 26 contributions on as many subjects, including the various uses of aviation, its history, certain aspects of the art, aeronautical education, regulation, etc. 210 pp. $2.00. (Apply to the Academy, Rumford Press Building, Concord, N. H.

Concrete Cradles for Large Pipe Conduits.—By W. J. Schlick and James W. Johnson. A highway research investigation conducted at Ames, Iowa, by the Iowa Engineering Experiment Station in cooperation with the United States Bureau of Public Roads, including results of tests on cradled pipe, and conclusions drawn. Bulletin 80 of the Experiment Station. 43 pp. (Apply to the Station, Iowa State College, Ames, Iowa.)

Fire Waste and Its Prevention.—A paper by Richard E. Vernor, Manager, Fire Prevention Department, Western Actuarial Bureau, Chicago, presented at the Second Short Course for Fire Fighters at Ames, Iowa, October 26-29, 1926. Bulletin 90, Engineering Extension Department, Iowa State College, Ames, Iowa. 7 pp. (Apply to the Engineering Extension Department.)

Sewage Treatment and Refuse Disposal.—An article by H. Burdett Cleveland, consulting sanitary engineer, New York City, reprinted from *The American Year Book*, 1926; it relates to progress during the year 1926. 2 pp. (Apply to the author, 38 Park Row, New York.)

Water-Meters and the Elimination of Waste.—A study of New York City's water-supply problems, compiled by the Water Works Research Bureau, and dated April, 1927. It shows the amount of waste at present and the saving that metering would bring about as to water furnished and new investment needed. 36 pp. (Apply to the Bureau, 50 East 42nd Street, New York.)



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Readings in Urban Sociology.—Edited by Scott E. W. Bedford, Research Secretary of the United Charities of Chicago. D. Appleton and Co., New York. 1927. XXXIV + 903 pp. Postpaid, $5.25.

Dealing primarily with cities of over 100,000 population, this book is directly concerned with over one-fourth of the people of the United States, and also has an important bearing on the other fourth that live in places of from 2,500 to 100,000 inhabitants. The term "sociology" is broadly used, as the content of the book ranges from the history, location, growth and planning of cities, through topics of streets, traffic, transportation, civic esthetics, architecture, public health and safety, housing, community organization, recreation, education and worship, to a final chapter on social adjustment. A vast amount of ground is covered by the readings, which vary in length from a single brief sentence to six pages and exhibit many points of view. Each of the nine chapters carries an extensive bibliography, a large number of questions for discussion, and a list of topics for investigation, illustrating the infinite variety that the subject of urban sociology, so conceived, has to offer. The book is chiefly designed for teaching purposes; it should have a very wide usefulness to all students of municipal affairs, whether in administration, politics, journalism, the university or the home.

Proceedings, Eighth Annual Convention, Florida Commercial Secretaries Association.—In 66 mimeographed pages are given the reports, addresses, etc., of the convention, which was held at Fort Pierce, Fla., on April 1 and 2, 1927. Papers relating to the various industrial, agricultural, resort and organizational questions before Florida chambers of commerce are given. (Apply to the Secretary, Harry S. Ransom, Chamber of Commerce, Clearwater, Fla.)

Chamber "Do's" and "Don'ts."—A 34-page reprint of vest-pocket size, from *Nation's Business*, containing various suggestions for chambers of commerce, regarding programs, committees, members' interest, financing, budgets, industrial promotion, secretaries, and scope of activities. (Apply to *Nation's Business*, care Chamber of Commerce of the United States, Washington, D. C.)

Economic Survey of Lakeland, Fla.—A 63-page loose-leaf multigraphed report, compiled by the Publicity Department of the Lakeland Chamber of Commerce, and giving descriptions and statistics as to various features of Lakeland, Polk County, and the state of Florida. Maps, charts, and four aerial photographs. There are five supplemental sheets adding to the completeness of the statistical data. (Apply to Chamber of Commerce.)

Kern County Survey Completed.—A summary of the findings of a survey of expenditures and tax conditions in Kern County, Calif., by the California Taxpayers' Association, published in the June number of *The Tax Digest* of that Association. The summary is 14 pages long and includes several tables and charts. 25 cents. (Apply to the Association, 417 South Hill Street, Los Angeles, Calif. The complete report can also be had, for $1.00.)

Industrial Survey of Springfield, Ill.—An attractively printed and illustrated booklet of 48 quarto pages, presenting an industrial survey made under the direction of the Industrial Development Committee of the Chamber of Commerce by A. R. Gwinn, Manager of the Industrial Development Department of the Central Illinois Public Service Company, Springfield. The subject matter is divided into general information, markets, transportation, labor, raw materials, public utilities, and industries. (Apply to Chamber of Commerce.)

Reports of Cincinnati Bureau of Municipal Research.—Report No. 1, August, 1926, A Retirement System for Municipal Employees—Preliminary Financial Analysis, 11 pp.; Report No. 4, October, 1926, Municipal Payroll Procedure—Analysis of Present System and Recommendations for Revision, 44 pp.; Report No. 5, November, 1926, Police Department—Administration, Records and Personnel (with assistance of New York Bureau of Municipal Research), 46 pp.; Report No. 6, January, 1927, A Municipal Journal—Content and Procedure, 7 pp.; Report No. 7, March, 1927, The Administrative Code and the Municipal Code of Ordinances, 72 pp. Mimeographed. (Apply to the Bureau, 312 West 9th Street, Cincinnati, Ohio.)

Communities Are Advertising.—An article by Donald Jones, in *Advertising and Selling* for May 4, about the extent of advertising of cities, on national lines, with methods used. 15 cents. (Apply to *Advertising and Selling*, 9 East 38th Street, New York.)

Canadian Municipal Directory, 1927.—Edited by H. Wisely Bragg, Wisely Bragg Publishing Co., Montreal, P. Q., Canada. 1927. 199 pp. $2.50.

This publication, now in its second year, is handy in size and attractively gotten up. It is divided into three sections: the first is the municipal directory proper, giving lists of the urban and rural municipalities by provinces; a table shows these as numbering 105 cities, 469 towns, and 943 villages, a total of 1,517 urban municipalities; and 2,809 townships, counties and other rural municipal entities, making a grand total of 4,326. About 20,000 names of officials are given. There is some descriptive matter for certain of the provincial governments. The second or reference section contains a number of leading articles on various matters of municipal interest, a table of taxation and debt statistics for cities and towns, and a very complete table of water-works statistics. The third section is a buyers' guide for the use of municipal officials in the purchase of a wide variety of municipal supplies. Articles in French as well as in English are given in one part of the book.

Reports of Committees, National Fire Protection Association.—Various committee reports prepared for the annual meeting of the Association, at Chicago, May 9-12, 1927; they include: Proposed Regulations for Bus Garages (Commttee on Garages); Tentative Specifications for Standard Industrial Buildings (Committee on Building Construction); Building Exits Code, Places of Public Assembly (Committee on Safety to Life); Suggested Ordinance Regulating Oil Burning Equipments (Committee on Laws and Ordinances); and Report of Committee on Protection of Openings in Walls and Partitions. 11, 27, 14, 2, and 2 pp., respectively. (Apply to the Association, 40 Central Street, Boston, Mass.)

Politics in West Palm Beach.—A 4-page article in *Public Management* for May, discussing the rise and fall of modern city management in this Florida city, by E. J. Donnelly, Apprentice City Manager and Assistant City Engineer, West Palm Beach. (Apply to *Public Management*, Fraser Hall, Lawrence, Kans.)

Kenosha's Merit System for Policemen.—In the May issue of *Public Management*. By C. M. Osborn, City Manager, and Thad Logan, Chief of Police, Kenosha, Wis. Dealing with additional remuneration awarded for marksmanship, special attention to duty, and self-improvement. 2 pp. 50 cents. (Apply to *Public Management*, Fraser Hall, Lawrence, Kans.)

Standardized Compensation in St. Louis.—An ordinance providing for the fixing of uniform salaries or compensation for all positions of like service in the classified service. Ordinance 36007, printed in the May 10 issue of *The City Journal* of St. Louis, Mo. Includes a table of positions, with the standardized compensation therefor. 17 pp. 1 cent. (Apply to J. H. Grosse, Register, Room 203, City Hall, St. Louis, Mo.)

Proceedings of the Second Institute of Municipal Affairs, Norwich University.—This Institute was held at Montpelier, Vt., January 12-13, 1927, under the auspices of the Bureau of Municipal Affairs of Norwich University. The proceedings are contained in a booklet of 47 pages, and include addresses on uniform accounting, tax exemption for new enterprises, municipal forests, zoning in small communities, etc. (Apply to the Bureau, Norwich University, Northfield, Vt.)

Organization and Operation of the Government of Jackson County, Mo.—The Kansas City Public Service Institute has made this study and report in order to show the general organization of Jackson County (in which Kansas City, Mo., is situated), the source of authority and general business organization and procedure, and to point out wherein defective organization makes efficient operation impossible. February, 1927. 70 mimeographed pages. (Apply to the Institute, 501 Orear-Leslie Building, Kansas City, Mo.)

Report of Standardization Committee, Boston.—A 23-page pamphlet reporting on personnel conditions in the city service of Boston, a suggested plan for the classification of employees and the standardization of salaries. Document 58—1927. (Apply to the Committee, City Hall, Boston, Mass.)

Pension Systems.—A 13-page table headed "Pension Systems that Prevail in Cities above 20,000 Population in United States and Canada," in *The International Fire Fighter* for May. Gives sources of funds, amounts and conditions of pensions, etc. (Apply to Room 106, A. F. of L. Building, Washington, D. C.)

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Yes—we should like you to mention THE AMERICAN CITY.

Village Laws and Government in Minnesota.—By Harvey Walker, Staff Member, League of Minnesota Municipalities. A 179-page booklet, in stiff paper covers, giving the history of various forms of local government of incorporated places in Minnesota, other than cities. These numbered 630 villages and 1 borough, in 1926. There are chapters on incorporated towns, an obsolete classification now; special village charters; general village laws, including the laws of 1905, the latest comprehensive legislation; and a discussion of the advantages and the procedure of incorporation. An appendix gives lists of incorporated towns and villages, the text of the 1885 law as amended, and a summary of general laws applying to villages. Publication No. 6, Bureau for Research in Government, of the University of Minnesota. $1.50. (Apply to the Bureau, University of Minnesota, Minneapolis, Minn.)

Civic Improvement in Your Town.—By Harlean James, Executive Secretary, American Civic Association. An illustrated booklet giving suggestions as to program and plan of procedure for citizens interested in improving their towns. A bibliography of books and periodicals is included. 40 pp. 50 cents. (Apply to American Civic Association, 905 Union Trust Building, Washington, D. C.)

Swimming Pools.—The annual *Journal of the American Association for Promoting Hygiene and Public Baths*, dated April, 1927, is largely devoted to swimming-pool design, construction, equipment, operation, regulation, sanitation and safety, there being several articles and reports on these matters. $1.00. (Apply to Arthur M. Crane, Editor, P. O. Box 508, Hammond, Ind.)

Employees' Outdoor Recreation, and Vacations.—Two articles in the *Monthly Labor Review*, U. S. Department of Labor, for May: "Outdoor Recreation for Industrial Employees," an illustrated article of 16 pages, describing the extent of such recreation, its forms, and specific examples as provided by various companies; and "Vacations with Pay for Industrial Workers," 1 page, regarding the results of inquiries into the subject by *New York*, published by New York University, New York City. 15 cents. (Apply to Government Printing Office, Washington, D. C.)

The Bonded Debt of 214 Cities.—An article in *National Municipal Review* for June, by C. E. Rightor, Chief Accountant of the Detroit Bureau of Governmental Research. This is an annual feature of the *Review*. It includes a 5-page, 13-column table. 50 cents. (Apply to the *Review*, 261 Broadway, New York.)

Trenton's Municipal Colony.—A 4-page illustrated article in *Trenton*, for April, describing the growth and present make-up of the group of buildings, with their personnel and equipment, where Trenton, N. J., cares for its sick and destitute. (Apply to Chamber of Commerce, Trenton, N. J.)

Facts and Figures of the Automobile Industry, 1927 Edition.—A 96-page booklet issued by the National Automobile Chamber of Commerce, containing much information and many statistics about automobile production and use, registration, highways, taxes, operating costs, bus transportation, etc. (Apply to the Chamber, 366 Madison Avenue, New York.)

Report of the 13th Annual Convention of the Canadian Good Roads Association.—This convention was held on September 28, 29 and 30, 1926, at Edmonton, Alberta. The report is a 172-page illustrated booklet, containing many interesting papers and discussions. (Apply to the Association, New Birks Building, Montreal, Que.)

Building Exits Code.—An 88-page booklet, containing the code, sponsored by the National Fire Protection Association and approved as the Tentative American Standard on March 4, 1927, by the American Engineering Standards Committee. $1.00. (Apply to the Association, 40 Central Street, Boston, Mass.)

Report of Operations for 1926, Division of Public Works, New Orleans.—This is the first report of the division ever issued. It consists of 24 mimeographed pages, 8 pages being a textual report on the policy, budget, organization and activities of the division, and 16 pages being statistical. (Apply to J. L. Reilly, Deputy Commissioner, Room 18, City Hall, New Orleans, La.)

The Effect of Pipes of Different Metals upon the Quality of Water Supplies.—A paper by H. W. Clark, Chief Chemist, Massachusetts Department of Public Health, reprinted from the *Journal of the New England Water Works Association*. Gives the results of various experiments and investigations. 14 pp. (Apply to the author, Boston, Mass.)

Traffic-Control Systems.—Two papers in the May *Transactions of the Illuminating Engineering Society*: "Traffic Control by Color Signals" (28 pp. including discussion), by K. W. Mackall, engineer, Crouse-Hinds Co., and "Engineering Essentials of Traffic Control Systems" (11 pp.), by Carl E. Egeler, commercial engineer, National Lamp Works; the latter paper is an abstract. $1.00. (Apply to publication office of the Society, Easton, Pa.)

Traffic Signals Fitted to Complicated Intersections.—An article by L. M. Traiser, Special Traffic Engineer, Chicago Surface Lines, in *Electric Railway Journal*, June 4, 1927. Describes special methods of signal control employed at complicated crossings in Chicago to increase flexibility of traffic movements and reduce interference and delay. 20 cents. (Apply to the *Journal*, Tenth Avenue and 36th Street, New York.)

Accident Prevention News.—A paper published by the Toledo Safety Council, the first number, consisting of four pages, being dated March 1, 1927. It will appear at irregular intervals for the present. It is edited by Jay E. Thompson, Secretary of the Council. (Apply to the Council.)

Traffic Signals.—Necessity or Nuisance?—A 17-page paper by Hawley S. Simpson, traffic engineer, Detroit, Mich., read before the Michigan State Safety Conference in Grand Rapids, March 22, and printed in the May number of *Aera*. It presents the problems of signaling created by present traffic conditions, a comparison of the various systems in use, and conclusions reached. 50 cents. (Apply to *Aera*, Lyon Block, Market Square, Albany, N. Y. A rather full abstract of the paper appears in *National Safety News* for May, 108 East Ohio Street, Chicago, Ill. 40 cents.)

Decentralization of Cities as a Means of Reducing Street Accidents.—A brief preliminary study for the Public Safety Advisory Committee of the National Safety Council, by the headquarters staff of the latter. The indications of the study are negative. (Apply to Public Safety Division, National Safety Council, 108 East Ohio Street, Chicago, Ill.)

Relief of City Traffic.—Booklet I, "How To Make a Traffic Survey," by Miller McClintock, and "Right Use of Signals," by E. J. McIlraith. The first of a series of booklets giving the papers, questions and answers at the City Traffic Conference, Chicago, Ill., April, 13-14, 1927. 11 pp. (Apply to Automobile Chamber of Commerce, 366 Madison Avenue, New York.)

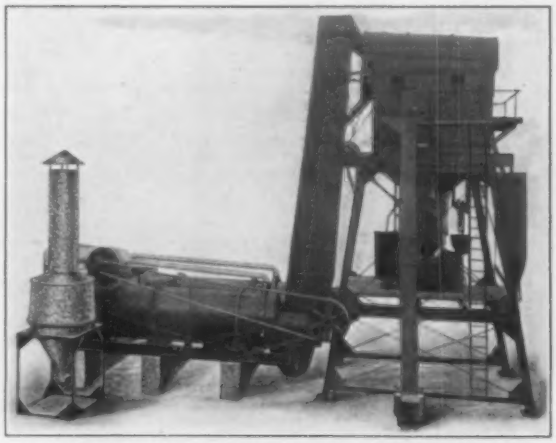
Report on Railroad Grade Crossing Elimination at Elmira, N. Y.—A printed report of 28 quarto pages and 10 additional exhibits, including a large folded map of the city, rendered to the Mayor and Council of Elmira by the Technical Advisory Corporation, consulting engineers, of New York, under date of February 10, 1927. Results of a field study are given, plans proposed by the railroads are discussed, and a comprehensive scheme of elimination is set forth. (Apply to Technical Advisory Corporation, 15 Park Row, New York.)

A Ready Reference to Compulsory Automobile Insurance.—This is a selected reading list, compiled by Mildred B. Pressman, Librarian, National Bureau of Casualty and Surety Underwriters, and comprising 6 mimeographed pages; it is revised to May 15, 1927. (Apply to the Bureau, 120 West 42nd Street, New York.)

Population Map of Chicago.—The Municipal Reference Library of Chicago has recently completed a photostat map, 29¼ x 15¾ inches, showing the distribution of population of the city of Chicago by square-mile sections in 1920, 1916, 1912, 1910, 1908, and 1900. $5. (Apply to the Library, 1005 City Hall, Chicago, Ill.)

The Geographic Background of Chicago.—A 70-page booklet by J. Paul Goode, Professor of Geography, University of Chicago. Starting with the thesis that Chicago is a city born to greatness, rather than having had greatness thrust upon it, or having had to achieve it against great natural obstacles, the author proceeds to develop the geologic and geographic history and advantages of the city. Generously illustrated with maps and charts. 75 cents. (Apply to University of Chicago Press.)

The City Club of Cleveland.—A booklet sketching the history and describing the activities and attractions of the Club, with a list of notable speakers at its Forum, and its creed and constitution. 24 pp. (Apply to City Club, Hollenden Hotel, Cleveland, Ohio.)



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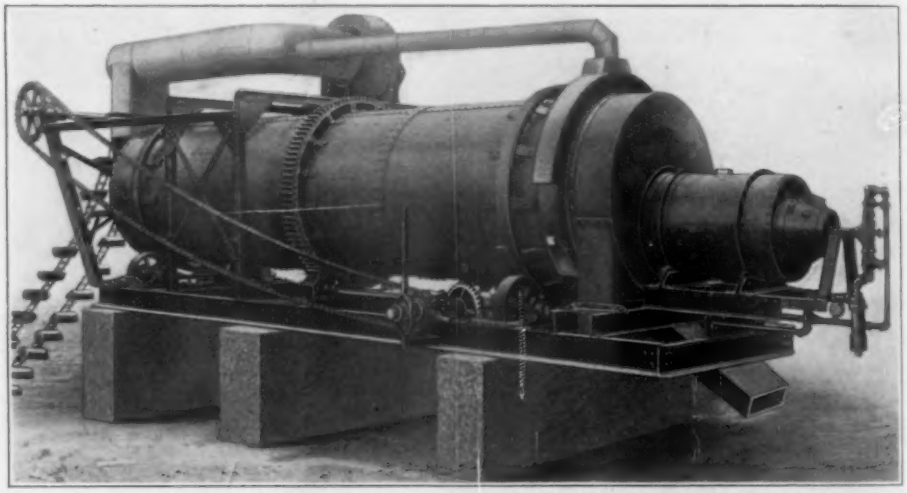

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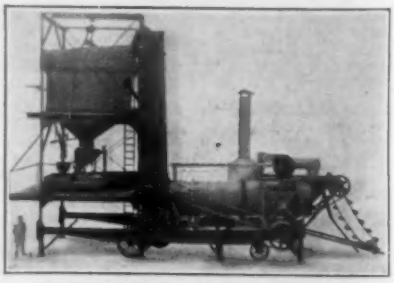

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Report of The Giant Power Board (Pennsylvania).—Under date of December 7, 1926, the Giant Power Board created by Governor Pinchot's executive order of June 25, 1925, made its final report to him, prior to his retirement and the Board's dissolution. After reviewing the problem and the work of the Board, the report includes various appendices, giving the text of the original executive order, the report of the Board to the Legislature in 1925, the proposed Giant Power bills, and various papers and reports dealing with rural electric service, regulation of the Conowingo project, holding company stocks, the spread of rates for electric service, and its cost, the Joint Giant Power Commission of New York, New Jersey and Pennsylvania, and a tri-state power map showing the territory served by the several aggregations of power companies. (Apply to Secretary of State, Harrisburg, Pa., or to Morris L. Cooke, Consulting Engineer, 1520 Locust Street, Philadelphia.)

Principles and Methods of Rate Regulation.—Arthur T. Hadley, President Emeritus of Yale University and a director of the New Haven and Santa Fe railroads, contributes this 16-page article to the *Yale Review* for April. He briefly reviews the history of regulation; favors monopoly in public utilities and condemns public ownership; assails the use of actual cost of plant as a basis in rate-making; and criticises the whole idea of limitation of private profit as a means of rate control. $1. (Apply to Yale University Press, 143 Elm Street, New Haven, Conn.)

Water Powers of Manitoba.—Water Resources Paper No. 56, Dominion Water Power and Reclamation Service, Department of the Interior, Canada. By C. H. Attwood, A.M.E.I.C., District Chief Engineer, Winnipeg. This is an illustrated 24-page booklet describing the developed and potential water-power resources of the Province of Manitoba, Canada, together with the degree and manner of governmental administration with respect to them. (Apply to Industrial Development Board of Manitoba, Confederation Life Building, Winnipeg, Man., Canada.)

Street-Railway Transportation in Cincinnati.—The sixth in a series of occupational studies published by the Vocation Bureau of the Cincinnati Public Schools. It is by Rebecca Van Hamm, and is the first that deals with a public utility. The nature of the business, the kinds of occupations, and the conditions of employment are described. There are many illustrations, and a bibliography. 64 pp. 1926. (Apply to The Vocation Bureau, Cincinnati Public Schools, Cincinnati, Ohio.)

Relief from Paving Charges by States and Communities.—A 9-page article by Mary A. Burke, Statistical Department, American Electric Railway Association, in the May number of *Aera*. It discusses the present situation as to relief of street-railway systems from paving charges, and gives a chronological summary of cases, both state and local, where relief has been obtained. 50 cents. (Apply to *Aera*, Lyon Block, Market Square, Albany, N. Y.)

Preliminary Report on Local Transportation Policy, Los Angeles.—This is a 20-page pamphlet submitted to the Los Angeles City Council by Delos F. Wilcox, Ph.D., consulting expert for the Council, dated April 28, 1927. It deals with the street-railway situation, considers the questions of franchises and public ownership, and recommends negotiations on purchase price. (Apply to Dr. Wilcox, 436 Crescent Street, Grand Rapids, Mich.)

Twentieth Annual Report of Board of Supervising Engineers, Chicago Traction.—This is a cloth-bound book of 437 pages, covering the fiscal year ended January 31, 1927, and also briefly reviewing progress in the 20-year period during which the Board has been functioning. Text relating to accounting and engineering results, financial exhibits in great detail, charts, and illustrations. 15 cents in stamps, for mailing. (Apply to Municipal Reference Library, 1005 City Hall, Chicago, Ill.)

Annual Report, Hydro-Electric System, City of Winnipeg.—This is the 15th annual report of this system, and is for the year 1926. It contains financial statements, photographs, charts showing the growth of the system, and explanatory text. 19 pp. (Apply to the Manager, 55 Princess Street, Winnipeg, Man.)

Annual Report of The Civic Club of Allegheny County.—A 12-page folder, dated June, 1927, giving, in question-and-answer form, the report on the various activities of the Club during the preceding 12-month period. (Apply to the Club, 604 Keenan Building, Pittsburgh, Pa.)

Municipal Health Department Practice for the Year 1923.—Public Health Bulletin No. 164, United States Public Health Service; July, 1926. It is based upon surveys of the 100 largest cities in the United States, made by the Public Health Service in cooperation with the Committee on Administrative Practice of the American Public Health Association. Section I, 545 pp., deals with practice with respect to specific topics. Section II, 183 pp., is a summary of health department organizations and services in the individual cities. An appendix of 52 pp. gives the common schedule used for field surveys. 803 pp. $1.25. (Apply to Government Printing Office, Washington, D. C.)

Proceedings of the Conference of State and Provincial Health Authorities of North America.—The 41st annual meeting of this Conference was held in Atlantic City on May 21-22, 1926, and is reported in this 236-page volume, dated 1927. Among important papers and reports that it contains are those on plague in California; the study of trachoma; prevention of child blindness; a milk survey in 12 states; and recent advances in sanitary practice in 32 states, territories and provinces of the United States and Canada. A list of the executive officers of the state, territorial and provincial boards of health of the two countries is given. (Apply to the Secretary-Treasurer, Dr. A. J. Chesley, State Board of Health, St. Paul, Minn.)

The Sanitary Condition of Incorporated Cities of Florida, 1927.—This is a summary of a rough sanitary survey of every incorporated town or city in Florida, giving conditions as of January-February, 1927. It is prepared by the Bureau of Engineering, State Board of Health. A brief paragraph is devoted to each town or city, these being arranged alphabetically. Special attention is given to mosquito control measures. 40 pp. (Apply to State Board of Health, Jacksonville, Fla.)

Detroit's Health During the Past Six Years.—The February, 1927, number of *City Health*, the bulletin of the Detroit Department of Health, dealing with Detroit's health progress during the past six years on the basis of the appraisal form for city health work. 47 pp. (Apply to the Department, 1300 Beaubien Street, Detroit, Mich.)

What is Known about the Effect of Smoke on Health?—An article by W. C. White, pathologist, United States Public Health Service, in *Mechanical Engineering* for June. It concerns the physiological effects of carbon particles and other constituents of smoke, and a proposed plan for further investigation. An extensive discussion of this and two other papers presented at the session on smoke abatement, at the annual meeting of the American Society of Mechanical Engineers, December, 1926, is reported, following the article. 60 cents. (Apply to the Society, 29 West 39th Street, New York.)

Utilizing Vital Statistics.—A paper by Arlington Ailes, M. D., Director, Hygienic Institute, LaSalle, Ill., with discussion, in *Illinois Health News* for May. The collection, compilation and use of vital statistics are gone into. 10 pp. (Apply to State Department of Public Health, Springfield, Ill.)

Annual Report of the Dental Department of the Peoria Public Schools.—A 5-page mimeographed report to the school superintendent on the educational, inspectional and dispensary activities of the dental department. (Apply School Dentist, 307 South Bourland Street, Peoria, Ill.)

Probation and Penal Treatment in Baltimore.—A study of the subsequent conduct of 305 probationers and a like number of convicts by the Criminal Justice Commission, by J. M. Hepbron, Director of the Commission. A 5-page article in the April number of *Baltimore*, published by the Baltimore Association of Commerce. Warnings and advice as to the probation system, used for 30 years in Maryland, are given. 20 cents. (Apply to Association of Commerce, 22 Light Street, Baltimore, Md.)

Immigrants and Their Children, 1920.—This is No. VII of the Census Monographs, of the Bureau of the Census. It is by Niles Carpenter and is a study based on census statistics relative to the foreign-born and the native white of foreign or mixed parentage. It covers the proportion, distribution and composition of the foreign stock, and also matters of fecundity, vitality, marital condition, citizenship and occupations. There are 431 pages, including 180 tables, 19 maps and 11 charts. $1.50. (Apply to Government Printing Office, Washington, D. C.)

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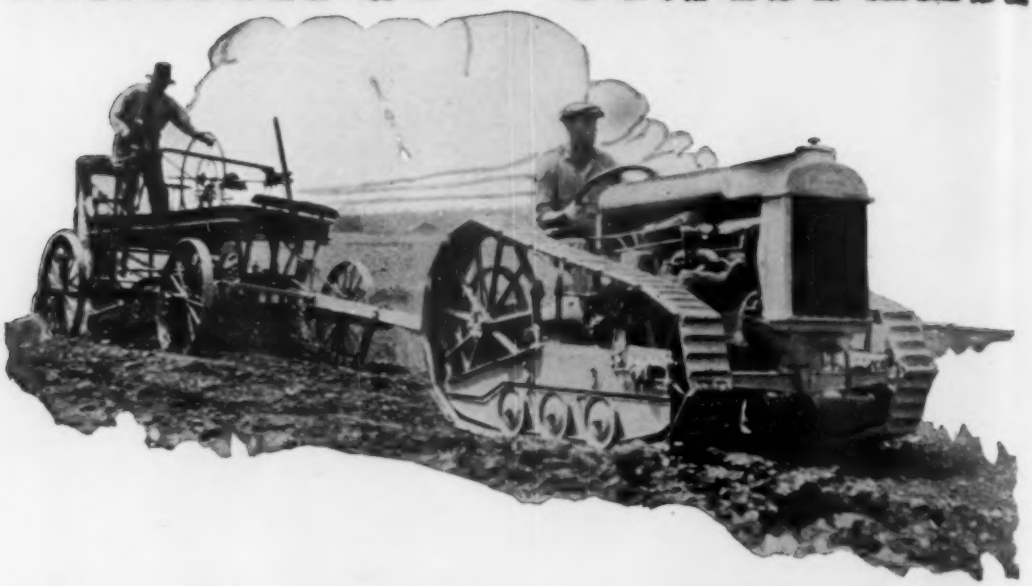

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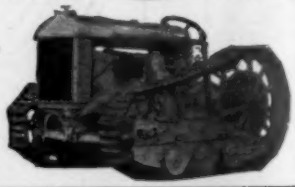

Convention Proceedings, 1927, American Road Builders' Association.—Edited by Charles M. Upham. American Road Builders' Association, Earle Building, Washington, D. C. 1927. 356 pp. $3.00.

This convention was held at Chicago, January 11-15, 1927, and was the twenty-fourth of the Association. The Eighteenth Annual Road Show was held during the previous five days; the present volume includes a list of the exhibitors. The convention included three each of general, engineering, and constructors' sessions, which are reported in this book, together with the business meeting. One of the general sessions was that of Pan-American Day, when speakers from Canada, Mexico, Cuba, Chile and Salvador were heard; another was that of All States Day, various highway problems being discussed. The three engineering sessions were devoted to consideration of work preliminary to construction, construction, and operation and maintenance. The general topics at the three constructors' sessions were: contracting as a business; practical operating methods; and the enlargement of the contractors' field.

Community Health Organization.—Edited by Ira V. Hiscock, Assistant Professor of Public Health, Yale School of Medicine. American Public Health Association, New York. 1927. VIII + 122 pp. $2.00.

This is Part IV of Volume II, American Health Congress Series. It presents revised plans of public health organization for cities of 100,000 and 50,000, and a new plan for a county or district of 30,000 population. These are the outgrowth of plans for cities of 100,000, 50,000 and 20,000 population, published in the last few years, and of the discussion for which these were the basis at the American Health Congress in May, 1926, where more than a dozen public health administrators from various parts of the country analyzed their experience with these plans. The American Public Health Association undertook to revise them on the basis of the material presented at this symposium, Professor Hiscock being engaged for this purpose. His work was carried on in close cooperation with others interested in public health development. As an indication of the practicability of the suggestions, it is stated that many communities in each population group are developing plans that in some instances are still more ambitious.

The Physiography of the Region of Chicago.—An attractively presented study of the natural features of this region, with special emphasis on such as have bearing upon regional planning, by F. M. Fryxell, of the Department of Geology, Augustana College; sponsored by the University of Chicago Local Community Research Committee and the Chicago Commonwealth Club, and prepared for the Committee on General Surveys of the Chicago Regional Planning Association. There are 55 well-printed quarto pages, profusely illustrated. Besides various maps in the text there are four colored insert maps—glacial, relief, drainage, and a generalized soil map, and a pocket insert of the base map of the Region of Chicago. April, 1927. (Apply to The University of Chicago Press, Chicago, Ill.)

Reports Received

BENNETTSVLLE, S. C.—Facts and Figures about Electric and Water Plant.

DUBUQUE, IOWA—Annual Report, Water Works, to March 31, 1927.

EASTON, PA.—Annual Report of City, 1926.

MADISON, N. J.—Annual Report of Borough, 1926.

MCPHERSON, KANS.—Annual Report of City, 1926.

MILTON, PA.—Annual Report, Borough Manager, 1926 (also includes 1925).

MINNEAPOLIS, MINN.—Report on Budget Facts and Financial Statistics for 1927. Board of Estimate and Taxation.

NEWARK, N. J.—Annual Report, Public Library, 1926.

NORFOLK, VA.—Annual Report of City, 1926.

OAK PARK, ILL.—Annual Report, Public Library, 1926.

PLAINFIELD, N. J.—Annual Report of City, 1925.

ROCHESTER, N. Y.—Annual Report, Department of Charities, 1926.

ST. PAUL, MINN.—Annual Report, Civil Service Bureau, 1926.

SPRINGFIELD, MASS.—Annual Report, Health Department 1926.

SPRINGFIELD, MASS.—Annual Report, Water Commissioners, 1926.

TORONTO, ONT.—Annual Report, Bureau of Municipal Research, to February 28, 1927.

WAYNESBORO, PA.—Annual Report, Borough Manager, 1926.

Conventions During July and August

JULY 3-8.—SEATTLE, WASH.
National Education Association of the United States. Annual meeting. Secretary, J. W. Crabtree, 1201 16th Street, Washington, D. C.

JULY 13-15.—DENVER, COLO.
American Society of Civil Engineers. Annual convention. Secretary, George T. Seabury, 33 West 39th Street, New York.

JULY 17-23.—PALO ALTO, CALIF.
Western School for Commercial Secretaries. Stanford University, Palo Alto, Calif.

JULY 19-22.—ASHEVILLE, N. C.
United States League of Local Building and Loan Associations. Convention. Secretary, H. F. Selarius, Cincinnati, Ohio.

JULY 21.—WORCESTER, MASS.
Massachusetts Association of Boards of Health. Annual meeting. Secretary, T. L. Maloney, City Hall Annex, Boston, Mass.

JULY 25-27.—MACKINAC ISLAND, MICH.
Governors' Conference. Convention. Secretary, Carl A. Hardee, Live Oak, Fla.

JULY 26-28.—ALTOONA, PA.
Pennsylvania Chiefs of Police Association. Secretary, J. N. Tillard, Altoona, Pa.

AUGUST, 1927.—DAYTON, OHIO.
Ohio Police Chiefs' Association. Annual convention. Secretary, E. G. Krause, 1020 Guardian Building, Cleveland, Ohio.

AUGUST 1-4.—EAST LANSING, MICH.
American Country Life Association. Annual conference. Secretary, Henry Israel, Room 1849, Grand Central Terminal Building, New York.

AUGUST 9-12.—PORTLAND, ORE.
International Association of Fire Chiefs. Annual convention. Secretary, William S. Boyd, 176 West Jackson Boulevard, Chicago, Ill.

AUGUST 10-13.—SEATTLE, WASH.
National Association of Real Estate Boards. Annual convention. Executive Secretary, Herbert U. Nelson, 310 South Michigan Avenue, Chicago, Ill.

AUGUST 12-18.—TACOMA, WASH.
American Prison Association. Annual Congress. General Secretary, E. F. Cass, 135 East 15th Street, New York.

AUGUST 16-19.—SALT LAKE CITY, UTAH.
International Association of Municipal Electricians. Annual convention. Secretary, Erwin H. Benz, Municipal Building, West New York, N. J.

AUGUST 22-25.—CLEVELAND, OHIO.
American Association of Cemetery Superintendents. Convention. Secretary, William B. Jones, Superintendent, Highwood Cemetery, Pittsburgh, Pa.

AUGUST 22-SEPTEMBER 3.—EVANSTON, ILL.
National School for Commercial and Trade Organization Executives. Address: Hugh Lynch, Merchants' Association, Woolworth Building, New York, or John N. Van der Vries, Chamber of Commerce of the United States, 801 Otis Building, Chicago, Ill.

AUGUST 23-25.—WILKES-BARRE, PA.
League of the Cities of the Third Class in Pennsylvania. Annual convention. Secretary, Fred Gates, City Clerk, Wilkes-Barre, Pa.

AUGUST 24-26.—LUNENBERG, N. S.
Union of Nova Scotia Municipalities. Annual convention. Secretary, Arthur Roberts, Bridgewater, N. S.

AUGUST 25-26.—NEPHI, UTAH.
State Municipal League of Utah. Annual convention. Secretary, William A. Fraser, 414 City and County Building, Salt Lake City, Utah.

AUGUST 31-SEPTEMBER 2.—TORONTO, ONT.
Ontario Municipal Association Convention. Secretary, Horace L. Brittain, 21 King Street, East Toronto, Ont.

(For future convention dates, see page 127)

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Conventions—When and Where

(For July and August conventions, see page 125)

SEPTEMBER.—GAFFNEY, S. C.
South Carolina Commercial Secretaries Association. Annual meeting. Secretary-Treasurer, George Barnes, Greenwood, S. C.

SEPTEMBER 3-4.—NANAIMO, VANCOUVER, B. C.
Union of British Columbia Municipalities. Annual convention. Secretary, A. W. Gray, P. O. Box 580, New Westminster, B. C.

SEPTEMBER, SECOND WEEK.—HURON, S. DAK.
South Dakota Commercial Secretaries Association. Annual convention. Secretary, G. R. McArthur, Huron, S. Dak.

SEPTEMBER 9-15.—BALTIMORE, MD.
Atlantic Deeper Waterways Association. Annual convention. Secretary, W. E. Bernard, 1405 Widener Building, Philadelphia, Pa.

SEPTEMBER 13-15.—DUBUQUE, IOWA.
International City Managers' Association. Annual convention. Secretary, John G. Stutz, Lawrence, Kans.

SEPTEMBER 13-16.—BUFFALO, N. Y.
Assembly of Civil Service Commissions. Annual meeting. Secretary, Charles S. Shaughnessy, Chief Examiner, Philadelphia, Pa.

SEPTEMBER 13-16.—BOSTON, MASS.
New England Water Works Association. Annual convention. Secretary, Frank J. Gifford, 715 Tremont Temple, Boston, Mass.

SEPTEMBER 16-17.—AKRON, OHIO.
American Water Works Association, Central States Section. Annual convention. Secretary, E. E. Bankson, 1111 Union Bank Building, Pittsburgh, Pa.

SEPTEMBER 19-23.—SACRAMENTO, CALIF.
League of California Municipalities. Convention. Secretary, William J. Locke, 707 Chancery Building, 564 Market Street, San Francisco, Calif.

SEPTEMBER 20-21.—DEL MONTE, CALIF.
American Institute of Accountants. Annual convention. Secretary, A. P. Richardson, 135 Cedar Street, New York.

SEPTEMBER 20-21.—SWAMPSCOTT, MASS.
Massachusetts Police Association. Annual convention. Secretary, John H. Shaughnessy, West Newton, Mass.

SEPTEMBER 26-29.—PHILADELPHIA, PA.
American Institute of Park Executives. Annual convention. Executive Secretary, Will O. Doolittle, Box 422, Tulsa, Okla.

SEPTEMBER 26-30.—CHICAGO, ILL.
National Safety Council. Annual Congress. Managing Director, W. H. Cameron, 108 East Ohio Street, Chicago, Ill.

SEPTEMBER 27-29.—NIAGARA FALLS, N. Y.
Canadian Good Roads Association. Annual convention. Secretary, George A. McNamee, New Birks Building, Montreal, Que.

SEPTEMBER 28-30.—SARATOGA SPRINGS, N. Y.
New York State Sanitary Officers' Association. Annual meeting. Secretary, Walter A. Leonard, M.D., Cambridge, N. Y.

OCTOBER 3.—DENVER, COLO.
American Association of State Highway Officials. Annual convention. Executive Secretary, W. C. Markham, 638 Munsey Building, Washington, D. C.

OCTOBER 3-6.—WASHINGTON, D. C.
American Red Cross. Annual convention. Secretary, Mabel T. Boardman, National Headquarters, Washington, D. C.

OCTOBER 3-7.—MEMPHIS, TENN.
Playground and Recreation Association of America. Annual convention. Secretary, H. S. Braucher, 315 Fourth Avenue, New York.

OCTFBER 3-7.—CLEVELAND, OHIO.
American Electric Railway Association. Annual convention and Manufacturers' Exhibit. Executive Secretary, J. W. Welsh, 292 Madison Avenue, New York.

OCTOBER 4-5.—GREENFIELD, MASS.
Massachusetts Federation of Planning Boards. Annual conference. Executive Secretary, Edward T. Hartman, 37 State House, Boston, Mass.

OCTOBER 4-7.—ST. LOUIS, MO.
American Association of Port Authorities. Annual convention. Secretary, Tiley S. McChesney, 200 Court Building, New Orleans, La.

OCTOBER 10-12.—KANSAS CITY, MO.
American Social Hygiene Association. Annual Regional Conference. General Director, William F. Snow, M.D., 370 Seventh Avenue, New York.

OCTOBER 10-14.—CHICAGO, ILL.
Illuminating Engineering Society. Annual convention. General Secretary, L. H. Graves, 29 West 39th Street, New York.

OCTOBER 12-13.—RACINE, WIS.
Wisconsin Chiefs of Police Association. Annual meeting. Secretary-Treasurer, Don McKay, Police Department, Waukesha, Wis.

OCTOBER 12-14.—JUNCTION CITY, KANS.
League of Kansas Municipalities. Annual convention. Secretary-Treasurer, John G. Stutz, University of Kansas, Lawrence, Kans.

OCTOBER 12-14.—COLUMBUS, OHIO.
American Society of Civil Engineers. Fall meeting. Secretary, George T. Seabury, 33 West 39th Street, New York.

OCTOBER 13-14.—TORONTO, ONT.
Canadian Tax Conference of Citizens Research Institute of Canada. Annual convention. Director, Horace L. Brittain, 21 King Street, East, Toronto, Ont.

OCTOBER 17-21.—CINCINNATI, OHIO.
American Public Health Association. Annual meeting. Secretary, Homer N. Calver, 370 Seventh Avenue, New York.

OCTOBER.—ELMIRA, N. Y.
American Water Works Association, New York Section. Annual meeting. Secretary, E. D. Case, 50 Church Street, New York.

OCTOBER 23-26.—COLUMBUS, OHIO.
National Association of Commercial Organization Secretaries. Annual convention. Secretary-Treasurer, Clarence R. Miles, Davenport, Iowa.

OCTOBER 26-29.—PINEHURST, N. C.
American Institute of Steel Construction. Annual convention. Executive Director, Charles F. Abbott, 285 Madison Avenue, New York.

NOVEMBER 7-9.—DURHAM, N. C.
American Water Works Association, North Carolina Section. Annual meeting. Secretary-Treasurer, H. B. Baity, University of North Carolina, Chapel Hill, N. C.

NOVEMBER 10-11.—NEW YORK.
Governmental Research Conference. Annual meeting. Secretary, Arch Mandel, 409 Lowe Building, Dayton, Ohio.

NOVEMBER 10-11.—NEW YORK.
National Association of Civic Secretaries. Annual meeting. Secretary, Henry H. Curran, 55 West 44th Street, New York.

NOVEMBER 10-11.—KITCHENER, ONT.
Ontario Associated Boards of Trade and Chambers of Commerce. Annual meeting. Secretary, T. Marshall, Royal Bank Building, Tortonto, Ont.

NOVEMBER 10-11.—NEW YORK.
National Municipal League. Annual convention. Secretary, H. W. Dodds, 261 Broadway, New York.

NOVEMBER 14-15.—ST. LOUIS, MO.
Mississippi Valley Association. Convention. Secretary, Lachlan MacLeay, Chamber of Commerce Building, St. Louis, Mo.

NOVEMBER 14-18.—DALLAS, TEXAS.
American Society for Municipal Improvements. Annual convention. Address: E. A. Kingsley, City Engineer, Dallas, Texas.

NOVEMBER, WEEK OF 28TH.—ATLANTA, GA.
Asphalt Association. Annual conference. Secretary and General Manager, J. E. Pennypacker, 441 Lexington Avenue, New York.

DECEMBER 1-2.—WASHINGTON, D. C.
Highway Research Board of the National Research Council. Annual meeting. Director, Charles M. Upham, Washington, D. C.

DECEMBER 7-8.—WASHINGTON, D. C.
National Rivers and Harbors Congress. Annual convention. Secretary, S. A. Thompson, 824 Colorado Building, Washington, D. C.

JANUARY 9-10.—DETROIT, MICH.
International Association of Street Sanitation Officials. Annual convention. Secretary, A. M. Anderson, 10 South LaSalle Street, Chicago, Ill.

JANUARY 9-13.—CLEVELAND, OHIO.
American Road Builders' Association. Annual convention and Road Show. Secretary, Ethel A. Birchland, Earle Building, Washington, D. C.

FEBRUARY 21-24.—WICHITA, KANS.
Southwest Road Show and School. Under auspices of Wichita Thresher and Tractor Club, Exposition Building, Wichita, Kans.

HARVARD TRAFFIC SPOTS

Harvard Traffic Spots are brass cups made in two diameters: 3 inches for pedestrian lanes and markings, and 4½ inches for traffic divisional lines. They are

Permanent,
Non-corrosive,
Highly visible,
Easily inserted, and
Require no upkeep.

Insertion in the pavement is accomplished by pounding about half a dozen times with a flat-faced cast-iron tamper. Another good method—which is faster—is to lay down the spots where marked and run a steam roller over them.

Harvard Traffic Spots are adaptable to asphalt, macadam, wooden block, Amasite, Warrenite and new concrete pavements.

Send for a trial lot today. Or write first for our illustrated circular, and be convinced.

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CHICAGO

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Time-Switches for Street Lighting

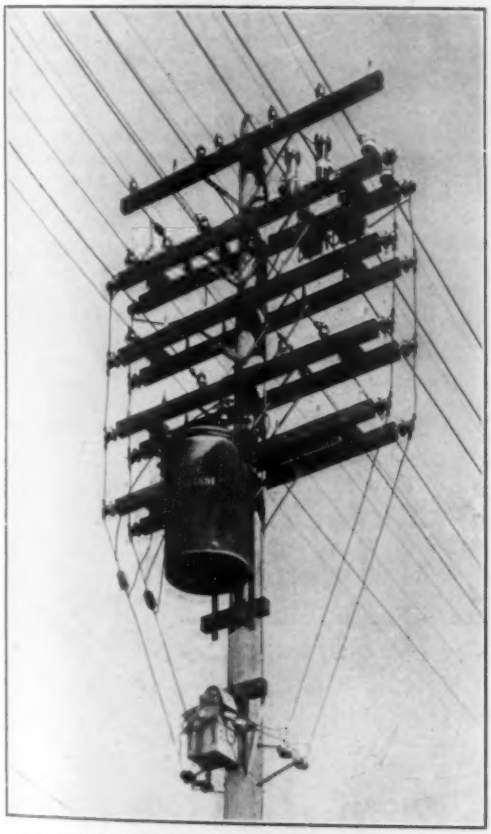
The use of time-switches for the automatic turning-on and turning-off of street lighting circuits gives a highly desirable decentralization of the street lighting system. Where multiple incandescent circuits are installed, the use of reliable and fully automatic time-switches is generally indicated. Where series incandescent circuits are installed with self-regulating S-L transformers, the use of reliable and fully automatic high-potential time-switches shows further great advantages in the elimination of extra feeders or pilot wires, in the increased load factor on existing primary distribution circuits, and in the standardization of pole line construction.

One of the most interesting features of Sauter self-winding time-switches, made by R. W. Cramer & Co., Inc., 136 Liberty Street, New York, is the simplicity and adaptability of the astronomic dial.

SAUTER SELF-WINDING ELECTRIC TIME-SWITCH

It is used advantageously in street lighting because this dial automatically resets daily the operating time in accordance with sun time. As days get shorter, the lighting time increases automatically, and then, as days become longer, the lighting time decreases always in close conformity with the sun.

For half-night lighting, that is, dusk till midnight or later, the time of switching-on keeps step with sunset, while the switching-off time remains constant as set. The mechanical ingenuity and completeness of the Sauter time-switches reduces per-operation cost to the minimum. Because of their accurate construction and reliable performance, they are being widely used in lighting control.



TYPICAL INSTALLATION OF A PRIMARY VOLTAGE SAUTER TIME-SWITCH

Kyrock Not in Rock Asphalt Merger

The Kentucky Rock Asphalt Co., Inc., Louisville, Ky., according to W. H. Tarvin, President, would not favorably consider merging its holdings or indentity with other rock asphalt interests. One of the reasons for this, according to Mr. Tarvin, is that some of the acreage which is now being pooled by one of the merging companies contains deposits which this company does not consider to be of value for paving purposes. In fact, some of the property involved is acreage once owned and later sold by the Kentucky Rock Asphalt Co. for the reason that this company's extensive core-drill tests indicated the unsuitability of the material for paving purposes.

The Kentucky Rock Asphalt Co. owns about 45,000 acres of proven asphalt rock ledges quite sufficient for its needs for many years. This company not only core-drills its deposits years in advance of development, but takes samples from proposed quarry sites that will be worked in the future. These samples are laid under normal traffic conditions for a period of at least five years be-

Then - Forget it for Five Years!

Real Economy!

LUSTROUS - PERMANENT - GUARANTEED

BRILLIANTLY gleaming metal markers installed in permanently visible lines or lettering and traffic safety zones are taken care of once and for all! No more fading white lines, constantly needing to be repainted. No more attention — no more upkeep. The job once completed, ***you can forget it for five years!***

For every marker we sell has a five year guarantee behind it. Its Monel Metal top is rust-resisting and its steel-like strength makes it impervious to dents or cracking. Under all weather and traffic conditions its soft brilliancy stands out as a traffic warning to motorist and pedestrian alike.

Over 30 largest cities in the U. S. have N-T-A Monel Metal Traffic Markers in use on their streets. Let us confer with you on *your* traffic problems.

Sample Marker and illustrated portfolio sent on request.

- At night, as well as in the day time, the brilliant Monel Metal Marker offers a bright line of warning.
- Rustproof—strong as steel—the N-T-A Marker is nondestructible throughout years of service.
- Our five-year guarantee eliminates risk to the buyer—all costs refunded if Markers fail during that period.
- Quickly installed by common labor in asphalt, creosote blocks, brick or concrete pavements, without interference with traffic.

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N.T.A. Monel Metal Markers

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No. 13, Mexico City

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fore attempting to produce or market the rock asphalt. The company knows that in addition to containing the proper percentage of bitumen, it comes from the right geological formation and has stood the physical test under traffic.

TRACKSON FULL-CRAWLER-EQUIPPED FORDSON WITH A BULL-DOG GANG LAWN-MOWER MOWING THE ROUGH ON A GOLF COURSE

The Care of Municipal Golf Courses

The work of reconditioning a municipal golf course and maintaining it during the golf season presents a variety of problems, and frequently those who have charge of this work have some difficulty in finding equipment that will do it satisfactorily and economically. In the spring when the ground is still soft and wet, such operations as plowing, grading, and the construction of new greens and hazards require equipment that can get a sure foothold and work without loss of power.

The Fordson with Trackson Full-Crawlers, as made by the Trackson Co., 500 Clinton Street, Milwaukee, Wis., has been found especially practical for this work and is used by many golf-course superintendents, contractors, and park boards that are responsible for the courses in some cities. The Trackson tread has wide steel tracks of a special ground-gripping and non-clogging design, and the weight of the outfit is distributed over 1,100 square inches of ground contact, reducing the pressure to 3¾ pounds per square inch. This makes it possible for the Trackson-Fordson to work in mud or deep sand where horses and wheel tractors would mire immediately. This light ground pressure is an advantage also for use with mowers on the greens and fairways where the sod must be kept smooth and unbroken.

The Trackson-Fordson was used in the construction of a new million-dollar golf course at Brigantine Beach, Atlantic City. The owners claim it did the work much faster and at less cost than the larger tractors that were tried at first. On this job the Trackson-Fordson was used with Schaefer scrapers for hauling sand from the beach to the bunkers, up over the sides of bunkers as high as 12 feet, and dumping the loads on the pinnacles.

Another owner who uses the machine for golf course work is J. Jensen of the Cary Station Country Club, Cary, Ill., who says that he has used it to transform a swamp full of waterholes and bogs into one of the best golf courses north of Chicago. This was work which could not have been done with horses, as they would have gone down out of sight.

Sand Eliminated in Deep-Well Pump Installations

Several years ago the Endicott, N. Y., Water Works Co. decided to replace its air-lift pumping system with Coniflo deep-well pumps, made by the Worthington Pump & Machinery Corporation, 115 Broadway, New York. At first there was some skepticism regarding the successful operation of these deep-well pumps because of difficulties which might be encountered from sand. After carefully considering all factors, it was decided to try to eliminate the sand.

A 2-inch air-line equipped with a quick-opening valve was lowered to the bottom of the well and so arranged with ropes and pulleys that the line could be raised or lowered as desired. Air at from 80 to 90 pounds per square-inch pressure was fed to the line. By quickly opening the air-valve and moving the air-line up and down to agitate and upset the formation in the bottom, the sand and gravel was gradually pumped out by air-lift until a large cavity was formed. This cavity was evidently lined with large stone and gravel too heavy to raise. Thus a very effective screen was formed which kept the sand back, and there has

INTERIOR OF ONE OF THE FOUR PUMP-HOUSES AT THE ENDICOTT, N. Y., WATER-WORKS, SHOWING THE CONIFLO DEEP-WELL PUMP

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been no trace of sand since the Coniflo pump was installed.

This method was used with like success on two or three subsequent installations of Coniflo deep-well pumps. In the case of the third the cavity was apparently not thoroughly cleared, as much sand was raised when the new deep-well pump was first placed in operation, but the sand remaining was soon pumped out with no apparent damage to the pump.

The first Worthington Coniflo pump was placed in service by the Endicott Water Co. on May 6, 1924. Since that time the pump has operated continuously with no trouble or attention except an occasional change of oil in the thrust bearings. No noticeable decrease in capacity or efficiency has occurred. A year later another Coniflo deep-well pump was installed, and about two years later two more units were placed in service, making a total of four. The pumps raise water from a depth of approximately 75 feet to an elevation of 10 feet above the ground. The average power consumption for the year 1926 was 0.6 kw. per thousand gallons.

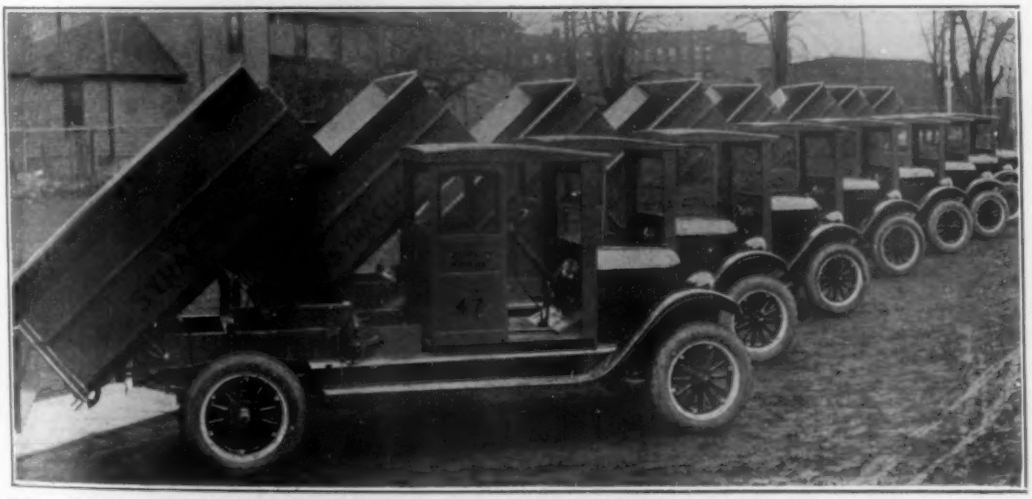
A NEW TYPE OF STREET LINE MARKER FROM DALLAS, TEXAS

A DeVilbiss paint-spray machine is mounted on a Harley-Davidson motorcycle and chassis. The paint-spray equipment has an independent engine, air pump, air tank and spraying equipment. Two metal discs gage the width of the mark and keep the edges regular. It is claimed that this machine will lay a line in ten minutes which by ordinary methods takes three or four days. When tested, the machine marked twenty miles of streets in one hour

Eagle Dump-Bodies for Syracuse Public Works

The Eagle Wagon Works, Auburn, N. Y., recently delivered to the Bresee-Chevrolet Motor Company eight dump bodies and open cabs on eight Chevrolet trucks for the use of the Public Works Department of the city of Syracuse for street collection of refuse. The bodies are of the hand-hoist dump type of large capacity, for, with the extra 6- x 12-inch flaring sideboards, they have a capacity of 110 cubic feet, or about 4 cubic yards. For carrying light, bulky material, such as waste paper, leaves and refuse, this capacity is ideal.

The body proper without the side flare measures 84 inches long, 65 inches wide, 16 inches deep, has a 55-inch loading height and a 24-inch dumping clearance, and weighs 900 pounds.



LINE-UP OF CHEVROLET TRUCKS EQUIPPED WITH EAGLE DUMP-BODIES AND OPEN CABS PURCHASED BY THE CITY OF SYRACUSE, N. Y.

ANNOUNCEMENT

WE WISH TO INFORM THE PUBLIC THAT ON JUNE FIRST WE PURCHASED THE PLAYGROUND INTERESTS OF THE F. B. ZIEG MFG. CO. OF FREDERICKTOWN, OHIO, KNOWN AS THE "PARADISE" LINE. HEREAFTER ALL "PARADISE" EQUIPMENT WILL BE MANUFACTURED TOGETHER WITH THE "BETTERBILT" LINE BY THE MITCHELL MFG. CO. OF MILWAUKEE, WIS.

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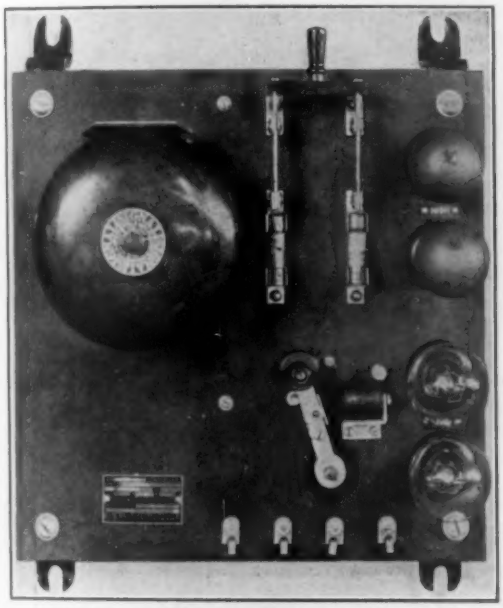
Mention THE AMERICAN CITY—it helps.

Springfield, Ill., to Have New Million-Gallon Steel Tank

The Commissioners of the city of Springfield, Ill., recently closed a contract with the Chicago Bridge and Iron Works, 37 West Van Buren Street, Chicago, Ill., for the fabrication and erection of a million-gallon Horton ellipsoidal-bottom elevated steel water-tank for the Water Department of the city. The tank will be 72 feet in diameter, and 41 feet from the bottom to the top, and will rest on a four-panel steel tower 83 feet high. According to the manufacturers, the tank when completed will be the largest elevated steel water-tank in Illinois.

A New High-Low-Water Alarm Signal Panel

A new signal panel designed for use in pump installations as a warning signal for calling an attendant in case of danger of overflow or emptying of a tank, has been developed by the General Electric Co., Schenectady, N. Y. The panal is governed by one or two float switches. With this panel an audible signal sounds immediately when the predetermined high or low level of water is reached. The gong can be silenced by the attendant upon his arrival, and the silencing switch does not have to be reset after the float switch takes a normal position. High and low signal lamps are provided, either of which lights when the predetermined level has been reached, remaining lighted until the float takes a normal position. The panel can be used for a one-level signal by omitting the float switch for the other level. It can also be used on pressure systems, but when single pole float or pressure switches are used, it is necessary to add a relay in place of the other pole.



THE NEW G. E. HIGH-LOW-WATER ALARM PANEL

Water-Meter Discs That Do Not Warp in Hot Water

In order to overcome the difficulties ordinarily encountered in cold-water meter service where hot water occasionally backs into the meter and destroys the hard-rubber disc usually used, the Fred W. Hanks Co., 10624 St. Clair Avenue, Cleveland, Ohio, designed the "Nowarp disc." The necessity for a disc that would stand heat made itself apparent to Fred W. Hanks, Manager, while he was connected with the Cleveland, Ohio, Water Department, twenty-five years ago. This led to the idea of using a graphitic substance, semi-carbonized or completely carbonized in order to secure a heat-resisting, anti-friction material of minimum gravity. After considerable experimentation, covering a period of several years, the present Nowarp disc was developed, and it has continued with improvements from time to time, until at present there are nearly a million in use.

This disc has reduced repair costs from hot water to a negligible figure. In some cities the hot water damage was well beyond 50 per cent of all the meter repairs, but by the adoption of this disc, they have been reduced to less than 5 per cent. In Cleveland, Ohio, the average repairs caused by hot water were between 35 and 56 per cent before using Nowarp discs, and are now in the neighborhood of 3½ per cent. Mr. Hanks states that where these discs are used exclusively, the percentage of damage from hot water is practically nothing. The 3½ per cent referred to above in Cleveland, Ohio, includes rubber discs of the old type which have not been replaced.

Pennsylvania Towns Buy Sterling Sirens

The Sterling Siren Fire Alarm Co., Inc., Rochester, N. Y., has recently sold Sterling siren fire-alarms to Coatesville, Bird-in-Hand, Gordonville, and Terre Hill, Pa.

Paving Brick Association Moves to Chicago

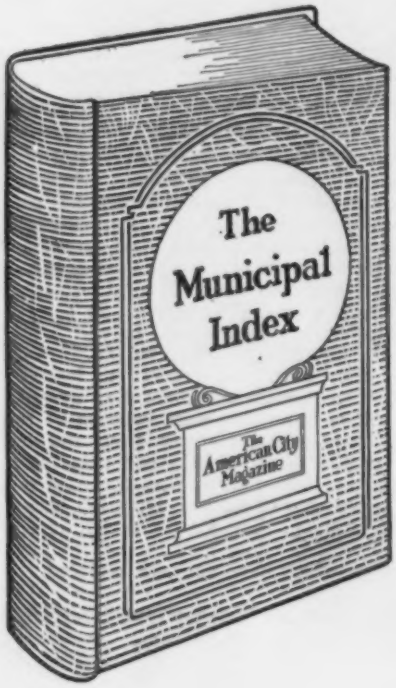
The National Paving Brick Manufacturers Association has announced the removal of its offices from Cleveland, Ohio, to 332 South Michigan Avenue, Chicago, Ill.

Topping Machinery Co. Moves Dayton Offices

The Chas. T. Topping Machinery Co., Dayton, Ohio, manufacturers of a small general utility traction ditch excavating machine which is powered by a Fordson tractor and known as the Topping Pony Ditcher, has announced the removal of its general offices from the plant of the Smith Gas Engineering Co., Dayton, Ohio, to the U. B. Building, Dayton, Ohio. The Topping Machinery Co. has also announced the adoption of several improvements in the design of the 1927 model of the Topping Pony ditcher. It is now so designed that it can be equipped with either four-wheel traction or full-length crawler-type traction.

Jack Redfern Joins Climax

The Climax Engineering Co., Clinton, Iowa, has announced that Jack Redfern has joined its sales staff. At one time Mr. Redfern was Sales Manager of the Power Manufacturing Co. He has extensive experience in the sale of gasoline and oil engines and enjoys a wide acquaintanceship among engine users. At the present time he is on the Pacific Coast in the interests of the Climax organization.



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- Street and Highway Lighting..
- Street and Highway Traffic Regulation .....
- Water-Supply and Purification.
- Swimming Pools and Bathing Places .....
- Power-Plant Equipment and Operation .....
- Sewers, Sewerage and Sewage Disposal .....
- Garbage, Ashes and Rubbish-Collection and Disposal.....
- Motor Trucks in Municipal Departments .....
- Fire and Police Departments...
- Parks, Playgrounds and Public Recreation Facilities .....

The volume contains also a section containing the cards of 54 consulting engineers, city planners, landscape architects, and other consultants serving municipalities.

If you have not already received a copy of THE MUNICIPAL INDEX for 1927, please write to the publishers,
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